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Edited by
John Leslie Livingstone
and
Theodore Grossman



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Preface

Do you know how to accomplish these important business tasks?

- Understand financial statements.
- Measure liquidity of a business.
- Analyze business profitability.
- Differentiate between regular income and extraordinary items.
- Predict future bankruptcy for an enterprise.
- Prepare a budget.
- Do a break-even analysis.
- Measure productivity.
- Figure out return on investment.
- Compute the cost of capital.
- Put together a business plan.
- Legitimately minimize income taxes payable by you or your business.
- Decide whether your business should be a limited partnership, a C or S corporation, or some other type of entity.
- Take your company public.
- Manage foreign currency exposure.
- Evaluate a merger or acquisition target.
- Serve as a director of a corporation.
- Build a successful e-business.
- Understand and use financial derivatives.
- Use information technology for competitive advantage.
- Value a business.

These are some of the key topics explained in this book. It is a book designed to help you learn the basics in finance and accounting, without incurring the considerable time and expense of a formal MBA program.

The first edition of this book was published in 1992, and the second edition in 1997. Both editions, hardback and paperback, have been highly successful and have sold many, many copies. In addition, the book has been translated into Chinese (Cantonese and Mandarin), French, Indonesian, Portuguese, and Spanish. We are delighted that so many readers in various countries have found this book useful. Now, the entire book has been updated for the third edition. The following new chapters have been added:

- Chapter 1: Using Financial Statements
- Chapter 3: Cost-Volume-Profit Analysis
- Chapter 5: Information Technology and You
- Chapter 6: Forecasts and Budgets
- Chapter 9: The Business Plan
- Chapter 10: Planning Capital Expenditure
- Chapter 17: Profitable Growth by Acquisition
- Chapter 18: Business Valuation

Also, there are eight new authors, substantial revisions of four chapters and complete updates of all remaining chapters. The book consists of valuable, practical how-to-do-it information, applicable to an entire range of businesses, from the smallest startup to the largest corporations in the world. Each chapter of the book has been written by an outstanding expert in the subject matter of that particular chapter. Some of these experts are full-time practitioners in the real world, and others are part-time consultants who also serve as business school professors. Most of these professors are on the faculty of Babson College, which is famous for its major contributions to the field of entrepreneurship and which, year after year, is at the top of the annual list of leading independent business schools compiled by *U.S. News and World Report*.

This book can be read, and reread, with a great deal of profit. Also, it can be kept handy on a nearby shelf in order to pull it down and look up answers to questions as they occur. Further, this book will help you to work with finance and accounting professionals on their own turf and in their own jargon. You will know what questions to ask, and you will better understand the answers you receive without being confused or intimidated.

Who can benefit from this book? Many different people, such as:

- Managers wishing to improve their business skills.
- Engineers, chemists, scientists and other technical specialists preparing to take on increased management responsibilities.
- People already operating their own businesses, or thinking of doing so.
- Business people in nonfinancial positions who want to be better versed in financial matters.
- BBA or MBA alumni who want a refresher in finance and accounting.

- People in many walks of life who need to understand more about financial matters.

Whether you are in one, some, or even none of the above categories, you will find much of value to you in this book, and the book is reader friendly. Frankly, most finance and accounting books are technically complex, boringly detailed, or just plain dull. This book emphasizes clarity to nonfinancial readers, using many helpful examples and a bright, interesting style of writing. Learn, and enjoy!

JOHN LESLIE LIVINGSTONE
THEODORE GROSSMAN

Acknowledgments

A book like this results only from the contributions of many talented people. We would like to thank the chapter authors that make up this book for their clear and informative explanations of the powerful concepts and tools of finance and accounting. In this world of technology and the Internet, while most of the underlying concepts remain fixed, the applications are ever changing, requiring the authors to constantly rededicate themselves to their professions. Our deepest appreciation goes to our wives, Trudy Livingstone and Ruth Grossman, and to our children Robert Livingstone, Aaron and Melissa Grossman, and Michael Grossman. They provide the daily inspiration to perform our work and to have undertaken this project.

J. L. L.
T. G.

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PART ONE

UNDERSTANDING THE NUMBERS

1 USING FINANCIAL STATEMENTS

John Leslie Livingstone

WHAT ARE FINANCIAL STATEMENTS? A CASE STUDY

Pat was applying for a bank loan to start her new business, Nutrivite, a retail store selling nutritional supplements, vitamins, and herbal remedies. She described her concept to Kim, a loan officer at the bank.

Kim: How much money will you need to get started?

Pat: I estimate \$80,000 for the beginning inventory, plus \$36,000 for store signs, shelves, fixtures, counters, and cash registers, plus \$24,000 working capital to cover operating expenses for about two months. That's a total of \$140,000 for the startup.

Kim: How are you planning to finance the investment of the \$140,000?

Pat: I can put in \$100,000 from my savings, and I'd like to borrow the remaining \$40,000 from the bank.

Kim: Suppose the bank lends you \$40,000 on a one-year note, at 15% interest, secured by a lien on the inventory. Let's put together projected financial statements from the figures you gave me. Your beginning balance sheet would look like what you see on my computer screen:

Nutrivite
Projected Balance Sheet as of January 1, 200X

Assets		Liabilities and Equity	
Cash	\$ 24,000	Bank loan	\$ 40,000
Inventory	<u>80,000</u>		
Current assets	104,000	Current liabilities	40,000
Fixed assets:		Equity:	
Equipment	<u>36,000</u>	Owner capital	<u>100,000</u>
Total assets	<u><u>\$140,000</u></u>	Liabilities and equity	<u><u>\$140,000</u></u>

The left side shows Nutrivite’s investment in assets. It classifies the assets into “current” (which means turning into cash in a year or less) and “noncurrent” (not turning into cash within a year). The right side shows how the assets are to be financed: partly by the bank loan and partly by your equity as the owner.

Pat: Now I see why it’s called a “balance sheet.” The money invested in assets must equal the financing available—its like the two sides of a coin. Also, I see why the assets and liabilities are classified as “current” and “noncurrent”—the bank wants to see if the assets turning into cash in a year or less will provide enough cash to repay the one-year bank loan. Well, in a year there should be cash of \$104,000. That’s enough cash to pay off more than twice the \$40,000 amount of the loan. I guess that guarantees approval of my loan!

Kim: We’re not quite there yet. We need some more information. First, tell me, how much do you expect your operating expenses will be?

Pat: For year 1, I estimate as follows:

Store rent	\$36,000	
Phone and utilities	14,400	
Assistants’ salaries	40,000	
Interest on the loan	<u>6,000</u>	(15% on \$40,000)
Total	<u><u>\$96,400</u></u>	

Kim: We also have to consider depreciation on the store equipment. It probably has a useful life of 10 years. So each year it depreciates by 10% of its cost of \$36,000. That’s \$3,600 a year for depreciation. So operating expenses must be increased by \$3,600 a year, from \$96,400 to \$100,000. Now, moving on, how much do you think your sales will be this year?

Pat: I’m confident that sales will be \$720,000 or even a little better. The wholesale cost of the items sold will be \$480,000, giving a markup of \$240,000—which is 33⅓% on the projected sales of \$720,000.

Kim: Excellent! Let's organize this information into a projected income statement. We start with the sales, then deduct the cost of the items sold to arrive at the gross profit. From the gross profit we deduct your operating expenses, giving us the income before taxes. Finally we deduct the income tax expense in order to get the famous "bottom line," which is the net income. Here is the projected income statement shown on my computer screen:

Nutrivite		
<i>Projected Income Statement for the Year Ending December 31, 200X</i>		
Sales		\$720,000
Less cost of goods sold		<u>480,000</u>
Gross profit		240,000
Less expenses		
Salaries	\$ 40,000	
Rent	36,000	
Phone and utilities	14,400	
Depreciation	3,600	
Interest	<u>6,000</u>	<u>100,000</u>
Income before taxes		140,000
Income tax expense (40%)		<u>56,000</u>
Net income		<u><u>\$ 84,000</u></u>

Pat, this looks very good for your first year in a new business. Many business startups find it difficult to earn income in their first year. They do well just to limit their losses and stay in business. Of course, I'll need to carefully review all your sales and expense projections with you, in order to make sure that they are realistic. But first, do you have any questions about the projected income statement?

Pat: I understand the general idea. But what does "gross profit" mean?

Kim: It's the usual accounting term for sales less the amount that your suppliers charged you for the goods that you sold to your customers. In other words, it represents your markup from the wholesale cost you paid for goods and the price for which you sold those goods to your customers. It is called "gross profit" because your operating expenses have to be deducted from it. In accounting, the word *gross* means "before deductions." For example "gross sales" means sales before deducting goods returned by customers. Sales after deducting goods returned by customers are referred to as "net sales." In accounting, the word *net* means "after deductions." So "gross profit" means income before deducting operating expenses. By the same token, "net income" means income after deducting operating expenses and income taxes. Now, moving along, we are ready to figure out your projected balance sheet at the

6 Understanding the Numbers

end of your first year in business. But first I need to ask you how much cash you plan to draw out of the business as your compensation?

Pat: My present job pays \$76,000 a year. I'd like to keep the same standard of compensation in my new business this coming year.

Kim: Let's see how that works out after we've completed the projected balance sheet at the end of year 1. Here it is on my computer screen:

Nutrivite

Projected Balance Sheet as of December 31, 200X

Assets		Liabilities and Equity	
Cash	\$ 35,600	Bank loan	\$ 40,000
Inventory	<u>80,000</u>		
Current assets	115,600	Current liabilities	40,000
Fixed assets:		Equity:	
Equipment	\$36,000	Capital: Jan 1	100,000
Less depreciation	<u>3,600</u>	Add net income	84,000
Net equipment	<u>\$32,400</u>	Less drawings	<u>(76,000)</u>
	<u>32,400</u>	Capital: Dec 31	<u>108,000</u>
Total assets	<u>\$148,000</u>	Liabilities and equity	<u>\$148,000</u>

Let's go over this balance sheet together, Pat. It has changed compared to the balance sheet as of January 1. On the Liabilities and Equity side of the balance sheet, the Net Income of \$84,000 has increased Capital to \$184,000 (because earning income adds to the owner's Capital), and deducting Drawings of \$76,000 has reduced Capital to \$108,000 (because Drawings take Capital out of the business). On the asset side, notice that the Equipment now has a year of depreciation deducted, which writes it down from the original \$36,000 to a net (there's that word *net* again) \$32,400 after depreciation. The Equipment had an expected useful life of 10 years, now reduced to a remaining life of 9 years. Last but not least, notice that the Cash has increased by \$11,600 from \$24,000 at the beginning of the year to \$35,600 at year-end. This leads to a problem: The Bank Loan of \$40,000 is due for repayment on December 31. But there is only \$35,600 in Cash available on December 31. How can the Loan be paid off when there is not enough Cash to do so?

Pat: I see the problem. But I think it's bigger than just paying off the loan. The business will also need to keep about \$25,000 cash on hand to cover two months operating expenses and income taxes. So, with \$40,000 to repay the loan plus \$25,000 for operating expenses, the cash requirements add up to \$65,000. But there is only \$35,600 cash on hand. This leaves a cash shortage of almost \$30,000 (\$65,000 less \$35,600). Do you think that will force me to

cut down my drawings by \$30,000, from \$76,000 to \$45,000? Here I am opening my own business, and it looks as if I have to go back to what I was earning five years ago!

Kim: That's one way to do it. But here's another way that you might like better. After your suppliers get to know you and do business with you for a few months, you can ask them to open credit accounts for Nutrivite. If you get the customary 30-day credit terms, then your suppliers will be financing one month's inventory. That amounts to one-twelfth of your \$480,000 annual cost of goods sold, or \$40,000. This \$40,000 will more than cover the cash shortage of \$30,000.

Pat: That's a perfect solution! Now, can we see how the balance sheet would look in this case?

Kim: Sure. When you pay off the Bank Loan, it vanishes from the balance sheet. It is replaced by Accounts Payable of \$40,000. Then the balance sheet looks like this:

Nutrivite

Projected Balance Sheet as of December 31, 200X

Assets		Liabilities and Equity	
Cash	\$ 35,600	Accounts payable	\$ 40,000
Inventory	<u>80,000</u>		
Current assets	115,600	Current liabilities	40,000
Fixed assets:		Equity:	
Equipment	\$36,000	Capital: Jan 1	100,000
Less depreciation	<u>3,600</u>	Add net income	84,000
Net equipment	<u>\$32,400</u> <u>32,400</u>	Less drawings	<u>(76,000)</u>
		Capital: Dec 31	<u>108,000</u>
Total assets	<u>\$148,000</u>	Liabilities and equity	<u>\$148,000</u>

Now the cash position looks a lot better. But it hasn't been entirely solved: There is still a gap between the Accounts Payable of \$40,000 and the Cash of \$35,600. So you will need to cut your drawings by about \$5,000 in year 1. But that's still much better than the cut of \$30,000 that had seemed necessary before. In year 2 the Bank Loan will be gone, so the interest expense of \$6,000 will be saved. Then you can use \$5,000 of this saving to restore your drawings back up to \$76,000 again.

Pat: That's good news. I'm beginning to see how useful projected financial statements are for business planning. Can we look at the revised projected balance sheet now?

Kim: Of course. Here it is:

Nutrivite
Projected Balance Sheet as of December 31, 200X

Assets		Liabilities and Equity	
Cash	\$ 40,600	Accounts payable	\$ 40,000
Inventory	<u>80,000</u>		
Current assets	120,600	Current liabilities	40,000
Fixed assets:		Equity:	
Equipment	\$36,000	Capital: Jan 1	100,000
Less depreciation	<u>3,600</u>	Add net income	84,000
Net equipment	<u>\$32,400</u> <u>32,400</u>	Less drawings	<u>(71,000)</u>
		Capital: Dec 31	<u>113,000</u>
Total assets	<u>\$153,000</u>	Liabilities and equity	<u>\$153,000</u>

As you can see, Cash is increased by \$5,000 to \$40,600—which is sufficient to pay the Accounts Payable of \$40,000. Drawings is decreased by \$5,000 to \$71,000, which provided the \$5,000 increase in Cash.

Pat: Thanks. That makes sense. I really appreciate everything you’ve taught me about financial statements.

Kim: I’m happy to help. But there is one more financial statement to discuss. Besides the balance sheet and income statement, a full set of financial statements also includes a cash flow statement. Here is the projected cash flow statement:

Nutrivite
Projected Cash Flow Statement for the
Year Ending December 31, 200X

Sources of Cash			
<i>From Operations:</i>			
Net income		\$ 84,000	
Add depreciation		3,600	
Add increase in current liabilities		<u>40,000</u>	
Total cash from operations	(a)	<u>\$ 127,600</u>	
<i>From Financing:</i>			
Drawings		\$ (71,000)	<i>Negative cash</i>
Bank loan repaid		<u>(40,000)</u>	<i>Negative cash</i>
Net cash from financing	(b)	<u>(111,000)</u>	<i>Negative cash</i>
Total sources of cash	(a + b)	<u>\$ 16,600</u>	

Uses of Cash

<i>Total uses of cash</i>	0	
<i>Total sources less total uses of cash</i>	\$ 16,600	<i>Net cash increase</i>
Add cash at beginning of year	24,000	
Cash at end of year	<u>\$ 40,600</u>	

Pat, do you have any questions about this Cash Flow Statement?

Pat: Actually, it makes sense to me. I realize that there are only two sources that a business can tap in order to generate cash: internal (by earning income) and external (by obtaining cash from outside sources, such as bank loans). In our case the internal sources of cash are represented by the “Cash from Operations” section of the Cash Flow Statement, and the external sources are represented by the “Cash from Financing” section. It happens that the “Cash from Financing” is negative because no additional outside financing is received for the year 200X, but cash payments are incurred for Drawings and for repayment of the Bank Loan. I also understand that there are no “Uses of Cash” because no extra Equipment was acquired. In addition, I can see that the Total Sources of Cash less the Total Uses of Cash must equal the Increase in Cash, which in turn is the Cash at the end of the year less the Cash at the beginning of the year. But I am puzzled by the “Cash from Operations” section of the Cash Flow Statement. I can understand that earning income produces Cash. However why do we add back Depreciation to the Net Income in order to calculate Cash from Operations?

Kim: This can be confusing, so let me explain. Certainly Net Income increases Cash, but first an adjustment has to be made in order to convert Net Income to a cash basis. Depreciation was deducted as an expense in figuring Net Income. So adding back depreciation to Net Income just reverses the charge for depreciation expense. We back it out because depreciation is *not* a cash outflow. Remember that depreciation represents just one year’s use of the Equipment. The cash outflow for purchasing the Equipment was incurred back when the Equipment was first acquired and amounted to \$36,000. The Equipment cost of \$36,000 is spread out over the 10-year life of the Equipment at the rate of \$3,600 per year, which we call Depreciation expense. So it would be double counting to recognize the \$36,000 cash outflow for the Equipment when it was originally acquired and then to recognize it a second time when it shows up as Depreciation expense. We do not write a check to pay for Depreciation each year, because it is not a cash outflow.

Pat: Thanks. Now I understand that Depreciation is not a cash outflow. But I don’t see why we also added back the Increase in Current Liabilities to the Net Income to calculate Cash from Operations. Can you explain that?

Kim: Of course. The increase in Current Liabilities is caused by an increase in Accounts Payable. These Accounts Payable are amounts owed to our suppliers

for our purchases of goods for resale in our business. Purchasing goods for resale from our suppliers on credit is not a cash outflow. The cash outflow only occurs when the goods are actually paid for by writing out checks to our suppliers. That is why we added back the Increase in Current Liabilities to the Net Income in order to calculate Cash from Operations. In the future, the Increase in Current Liabilities will, in fact, be paid in cash. But that will take place in the future and is not a cash outflow in this year. Going back to the Cash Flow Statement, notice that it ties in neatly with our balance sheet amount for Cash. It shows how the Cash at the beginning of the year plus the Net Cash Increase equals the Cash at the end of the year.

Pat: Now I get it. Am I right that you are going to review my projections and then I'll hear from you about my loan application?

Kim: Yes, I'll be back to you in a few days. By the way, would you like a print-out of the projected financial statements to take with you?

Pat: Yes, please. I really appreciate your putting them together and explaining them to me. I picked up some financial skills that will be very useful to me as an aspiring entrepreneur.

POINTS TO REMEMBER ABOUT FINANCIAL STATEMENTS

When Pat arrived home, she carefully reviewed the projected financial statements, then made notes about what she had learned.

1. The basic form of the balance sheet is $\text{Assets} = \text{Liabilities} + \text{Owner Equity}$.
2. Assets are the expenditures made for items, such as Inventory and Equipment, that are needed to operate the business. The Liabilities and Owner Equity reflect the funds that financed the expenditures for the Assets.
3. Balance sheets show the financial position of a business at a given moment in time.
4. Balance sheets change as transactions are recorded.
5. Every transaction is an exchange, and both sides of each transaction are recorded. For example, when a company obtains a bank loan, there is an increase in the asset cash that is matched by an increase in a liability entitled "Bank Loan." When the loan is repaid, there is a decrease in cash which is matched by a decrease in the Bank Loan liability. After every transaction, the balance sheet stays in balance.
6. Income increases Owner Equity, and Drawings decrease Owner Equity.
7. The income statement shows how income for the period was earned.
8. The basic form of the income statement is:
 - a. $\text{Sales} - \text{Cost of Goods Sold} = \text{Gross Income}$.
 - b. $\text{Gross Income} - \text{Expenses} = \text{Net Income}$.

9. The income statement is simply a detailed explanation of the increase in Owner Equity represented by Net Income. It shows how the Owner Equity increased from the beginning of the year to the end of the year because of the Net Income.
10. Net Income contributes to Cash from Operations after it has been adjusted to a cash basis.
11. Not all expenses are cash outflows—for instance, Depreciation.
12. Changes in Current Assets (except Cash) and Current Liabilities are not cash outflows nor inflows in the period under consideration. They represent future, not present, cash flows.
13. Cash can be generated internally by operations or externally from sources such as lenders or equity investors.
14. The Cash Flow Statement is simply a detailed explanation of how cash at the start developed into cash at the end by virtue of cash inflows, generated internally and externally, less cash outflows.
15. As previously noted:
 - a. The Income Statement is an elaboration of the change in Owner Equity in the Balance Sheet caused by earning income.
 - b. The Cash Flow Statement is an elaboration of the Balance-Sheet change in beginning and ending Cash.Therefore, all three financial statements are interrelated or, to use the technical term, “articulated.” They are mutually consistent, and that is why they are referred to as a “set” of financial statements. The three-piece set consists of a balance sheet, income statement, and cash flow statement.
16. A set of financial statements can convey much valuable information about the enterprise to anyone who knows how to analyze them. This information goes to the core of the organization’s business strategy and the effectiveness of its management.

While Pat was making her notes, Kim was carefully analyzing the Nutrivite projected financial statements in order to make her recommendation to the bank’s loan committee about Nutrivite’s loan application. She paid special attention to the Cash Flow Statement, keeping handy the bank’s guidelines on cash flow analysis, which included the following issues:

- Is cash from operations positive? Is it growing over time? Is it keeping pace with growth in sales? If not, why not?
- Are cash withdrawals by owners only a small portion of cash from operations? If owners’ cash withdrawals are a large share of cash from operations, then the business is conceivably being milked of cash and may not be able to finance its future growth.

- Of the total sources of cash, how much is being internally generated by operations versus obtained from outside sources? Normally wise businesses rely more on internally generated cash for growth than on external financing.
- Of the outside financing, how much is derived from equity investors and how much is borrowed? Normally, a business should rely more on equity than debt financing.
- What kind of assets is the company acquiring with the cash being expended? Are these asset expenditures likely to be profitable? How long will it take for these assets to repay their cost and then to earn a reasonable return?

Kim reflected carefully on these issues and then finalized her recommendation, which was to approve the loan. The bank's loan committee accepted Kim's recommendation and even went further. They authorized Kim to tell Pat that—if she met all her responsibilities in regard to the loan throughout the year—the bank would renew the loan at the end of the year and even increase the amount. Kim called Pat with the good news. Their conversation included the following dialogue:

Kim: To renew the loan, the bank will ask you for new projected financial statements for the subsequent year. Also, the loan agreement will require you to submit financial statements for the year just past—that is, not projected but actual financial statements. The bank will require that these actual financial statements be reviewed by an independent CPA before you submit them.

Pat: Let me be sure I understand: Projected financial statements are forward-looking, whereas actual financial statements are backward looking, is that correct?

Kim: Yes, that's right.

Pat: Next, what is an independent CPA?

Kim: As you probably know, a CPA is a certified public accountant, a professional trained in finance and accounting and licensed by the state. *Independent* means a CPA who is not an employee of yours or a relative. It means someone in public practice in a CPA firm, someone who will likely make an objective and unbiased evaluation of your financial statements.

Pat: And what does *reviewed* mean?

Kim: Good question. CPAs offer three levels of service relating to financial statements:

- An *audit* is a thorough, in-depth examination of the financial statements and test of the supporting records. The result is an audit report, which states whether the financial statements are free of material misstatements (whether caused by error or fraud). A “clean” audit report provides assurance that the financial statements are free of material misstatements. A “modified” report gives no such assurance and is cause

for concern. Financial professionals always read the auditor's report first, even before looking at any financial statement, to see if the report is clean. The auditor is a watchdog, and this watchdog barks by issuing a modified audit report. By law all companies that have publicly traded securities must have their financial statements audited as a protection to investors, creditors, and other financial statement users. Private companies are not required by law to have audits, but sometimes particular investors or creditors demand them. An audit provides the highest level of assurance that a CPA can provide and is the most expensive level of service. Less expensive and less thorough levels of service include the following.

- A *review* is a less extensive and less expensive level of financial statement inspection by a CPA. It provides a lower level of assurance that the financial statements are free of material misstatements.
- Finally, the lowest level of service is called a *compilation*, where the outside CPA puts together the financial statements from the client company's books and records without examining them in much depth. A compilation provides the least assurance and is the least expensive level of service.

So the bank is asking you for the middle level of assurance when it requires a review by an independent CPA. Banks usually require a review from borrowers that are smaller private businesses.

Pat: Thanks. That makes it very clear.

We now leave Pat and Kim to their successful loan transaction and move on.

FINANCIAL STATEMENTS: WHO USES THEM AND WHY

Here is a brief list of who uses financial statements and why. This list gives only a few examples and is by no means complete.

1. Existing equity investors and lenders, to monitor their investments and to evaluate the performance of management.
2. Prospective equity investors and lenders, to decide whether or not to invest.
3. Investment analysts, money managers, and stockbrokers, to make buy/sell/hold recommendations to their clients.
4. Rating agencies (such as Moody's, Standard & Poor's, and Dun & Bradstreet), to assign credit ratings.
5. Major customers and suppliers, to evaluate the financial strength and staying power of the company as a dependable resource for their business.

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6. Labor unions, to gauge how much of a pay increase a company is able to afford in upcoming labor negotiations.
7. Boards of directors, to review the performance of management.
8. Management, to assess its own performance.
9. Corporate raiders, to seek hidden value in companies with underpriced stock.
10. Competitors, to benchmark their own financial results.
11. Potential competitors, to assess how profitable it may be to enter an industry.
12. Government agencies responsible for taxing, regulating, or investigating the company.
13. Politicians, lobbyists, issue groups, consumer advocates, environmentalists, think tanks, foundations, media reporters, and others who are supporting or opposing any particular public issue the company's actions affect.
14. Actual or potential joint venture partners, franchisors or franchisees, and other business interests who need to know about the company and its financial situation.

This brief list shows how many people and institutions use financial statements for a large variety of business purposes and suggests how essential the ability to understand and analyze financial statements is to success in the business world.

FINANCIAL STATEMENT FORMAT

Financial statements have a standard format whether an enterprise is as small as Nutrivite or as large as a major corporation. For example, a recent set of financial statements for Microsoft Corporation can be summarized in millions of dollars as follows:

Income Statement			
Years Ended June 30	XXX1	XXX2	XXX3
Revenue	\$15,262	\$19,747	\$22,956
Cost of revenue	2,460	2,814	3,002
Research and development	2,601	2,970	3,775
Other expenses	3,787	4,035	5,242
Total expenses	<u>\$ 8,848</u>	<u>\$ 9,819</u>	<u>\$12,019</u>
Operating income	\$ 6,414	\$ 9,928	\$10,937
Investment income	703	1,963	3,338
Income before income taxes	7,117	11,891	14,275
Income taxes	2,627	4,106	4,854
Net income	<u>\$ 4,490</u>	<u>\$ 7,785</u>	<u>\$ 9,421</u>

Cash Flow Statement

Years Ended June 30	XXX1	XXX2	XXX3
<i>Operations</i>			
Net income	\$ 4,490	\$ 7,785	\$ 9,421
Adjustments to convert net income to cash basis	<u>3,943</u>	<u>5,352</u>	<u>4,540</u>
Cash from operations	<u>\$ 8,433</u>	<u>\$ 13,137</u>	<u>\$ 13,961</u>
<i>Financing</i>			
Stock repurchased, net	\$(1,509)	\$ (1,600)	\$ (2,651)
Stock warrants sold	538	766	472
Preferred stock dividends	<u>(28)</u>	<u>(28)</u>	<u>(13)</u>
Cash from financing	<u>\$ (999)</u>	<u>\$ (862)</u>	<u>\$ (2,192)</u>
<i>Investing</i>			
Additions to property and equipment	\$ (656)	\$ (583)	\$ (879)
Net additions to investments	<u>(6,616)</u>	<u>(10,608)</u>	<u>(11,048)</u>
Net cash invested	<u>\$(7,272)</u>	<u>\$ (11,191)</u>	<u>\$(11,927)</u>
Net change in cash	<u>162</u>	<u>1,084</u>	<u>(158)</u>

Balance Sheet

Years Ended June 30	XXX2	XXX3
<i>Current Assets</i>		
Cash and equivalents	\$ 4,975	\$ 4,846
Short-term investments	12,261	18,952
Accounts receivable	2,245	3,250
Other	<u>2,221</u>	<u>3,260</u>
Total current assets	<u>\$21,702</u>	<u>\$30,308</u>
Property and equipment, net	\$ 1,611	\$ 1,903
Investments	<u>15,312</u>	<u>19,939</u>
Total fixed assets	<u>\$16,923</u>	<u>\$21,842</u>
Total assets	<u>\$38,625</u>	<u>\$52,150</u>
<i>Current Liabilities</i>		
Accounts payable	\$ 874	\$ 1,083
Other	<u>7,928</u>	<u>8,672</u>
Total current liabilities	<u>8,802</u>	<u>9,755</u>
Noncurrent liabilities	<u>1,385</u>	<u>1,027</u>
Total liabilities	<u>\$10,187</u>	<u>\$10,782</u>
Preferred stock	\$ 980	
Common stock	13,844	\$23,195
Retained earnings	<u>13,614</u>	<u>18,173</u>
Total equity	<u>\$28,438</u>	<u>\$41,368</u>
Total liabilities and equity	<u>\$38,625</u>	<u>\$52,150</u>

Note: There are only two years of balance sheets but three years of income statements and cash flow statements. This is because the Microsoft financial statements above were obtained from filings with the U.S. Securities and Exchange Commission (SEC), and the SEC requirements for corporate annual report filings are two years of balance sheets, plus three years of income statements and cash flow statements.

The Microsoft financial statements contain numbers very much greater than those for Nutrivite. But there is no difference in the general format of these two sets of financial statements.

HOW TO ANALYZE FINANCIAL STATEMENTS

Imagine that you are a nurse or a physician and you work in the emergency room of a busy hospital. Patients arrive with all kinds of serious injuries or illnesses, barely alive or perhaps even dead. Others arrive with less urgent injuries, minor complaints, or vaguely suspected ailments. Your training and experience have taught you to perform a quick triage, to prioritize the most endangered patients by their vital signs—respiration, pulse, blood pressure, temperature, and reflexes. A more detailed diagnosis follows based on more thorough medical tests.

We check the financial health of a company in much the same fashion by analyzing the financial statements. The vital signs are tested mostly by various financial ratios that are calculated from the financial statements. These vital signs can be classified into three main categories:

1. Short-term liquidity.
2. Long-term solvency.
3. Profitability.

We explain each of these three categories in turn.

SHORT-TERM LIQUIDITY

In the emergency room the first question is: Can this patient survive? Similarly, the first issue in analyzing financial statements is: Can this company survive? Business survival means being able to pay the bills, meet the payroll, and come up with the rent. In other words, is there enough liquidity to provide the cash needed to pay current financial commitments? “Yes” means survival. “No” means bankruptcy. The urgency of this question is why current assets (which are expected to turn into cash within a year) and current liabilities (which are expected to be paid in cash within a year) are shown separately on the balance sheet. Net current assets (current assets less current liabilities) is known as *working capital*. Because most businesses cannot operate without positive working capital, the question of whether current assets exceed current liabilities is crucial.

When current assets are greater than current liabilities, there is sufficient liquidity to enable the enterprise to survive. However, when current liabilities exceed current assets the enterprise may well be in immanent danger of bankruptcy. The financial ratio used to measure this risk is current assets divided

by current liabilities, and is known as the *current ratio*. It is expressed as “2.5 to 1” or “2.5:1” or just “2.5.” Keeping the current ratio from dropping below 1 is the bare minimum to indicate survival, but it lacks any margin of safety. A company must maintain a reasonable margin of safety, or cushion, because the current ratio, like all financial ratios, is only a rough approximation. For this reason, in most cases a current ratio of 2 or more just begins to provide credible evidence of liquidity.

An example of a current ratio can be found in the current sections of the balance sheets shown earlier in this chapter:

Nutrivite
Selected Sections of Projected Balance Sheet
as of December 31, 200X

Assets		Liabilities and Equity	
Cash	\$ 40,600	Accounts payable	<u>\$40,000</u>
Inventory	<u>80,000</u>		
Current assets	<u>\$120,600</u>	Current liabilities	<u>\$40,000</u>

The current ratio is 120,600/40,000, or 3. This is only a rough approximation for several reasons. First, a company can, quite legitimately, improve its current ratio. In the earlier case of Nutrivite, assume the business wanted its balance sheet to reflect a higher current ratio. One way to do so would be to pay off \$20,000 on the bank loan on December 31. This would reduce current assets to \$100,600 and current liabilities to \$20,000. Then the current ratio is changed to \$100,600/\$20,000, or 5. By perfectly legitimate means, the current ratio has been improved from 3 to 5. This technique is widely used by companies that want to put their best foot forward in the balance sheet, and it always works provided that the current ratio was greater than 1 to start with.

Current assets usually include:

- Cash and Cash Equivalents.
- Securities expected to become liquid by maturing or being sold within a year.
- Accounts Receivable (which Nutrivite did not have, because it did not sell to its customers on credit).
- Inventory.

Current liabilities usually include:

- Accounts Payable.
- Other current payables, such as taxes, wages, or insurance.
- The current portion of long-term debt.

Some items included in Current Assets need a further explanation. These are:

- Cash Equivalents are near-cash securities such as U.S. Treasury bills maturing in three months or less.
- Accounts Receivable are amounts owed by customers and should be reported on the balance sheet at “realizable value,” which means “the amount reasonably expected to be collected in cash.” Any accounts whose collectibility is in doubt must be reduced to realizable value by deducting an allowance for doubtful debts.
- Inventories in some cases may not be liquid in a crisis (except at fire-sale prices). This condition is especially likely for goods of a perishable, seasonal, high-fashion, or trendy nature or items subject to technological obsolescence, such as computers. Since inventory can readily lose value, it must be reported on the balance sheet at the “lower of cost or market value,” or what the inventory cost to acquire (including freight and insurance), or the cost of replacement, or the expected selling price less costs of sale—whichever is lowest.

Despite these requirements designed to report inventory at a realistic amount, inventory is regarded as an asset subject to inherent liquidity risk, especially in difficult economic times and especially for items that are perishable, seasonal, high-fashion, trendy, or subject to obsolescence. For these reasons the current ratio is often modified by excluding inventory to get what is called the *quick ratio* or *acid test ratio*:

$$\text{Quick Ratio} = \left(\frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}} \right)$$

- In the case of Nutrivite, the quick ratio as of December 31 is \$40,600/\$40,000, or 1. This indicates that Nutrivite has a barely adequate quick ratio, with no margin of safety at all. It is a red flag or warning signal.

The current ratio and the quick ratio deal with all or most of the current assets and current liabilities. There are also short-term liquidity ratios that focus more narrowly on individual components of current assets and current liabilities. These are the *turnover ratios*, which consist of:

- Accounts Receivable Turnover.
- Inventory Turnover.
- Accounts Payable Turnover.

Turnover, which means “making liquid,” is a key factor in liquidity. Faster turnover allows a company to do more business without increasing assets. Increased turnover means that less cash is tied up in assets, and that improves liquidity. Moving to the other side of the balance sheet, slower turnover of liabilities conserves cash and thereby increases liquidity. Or more simply, achieving better turnover of working capital can significantly improve liquidity. Turnover ratios thus provide valuable information. The working capital turnover ratios are described next.

Accounts Receivable Turnover

The equation is:

$$\text{Accounts Receivable Turnover} = \frac{\text{Credit Sales}}{\text{Accounts Receivable}}$$

So, if Credit Sales are \$120,000 and Accounts Receivable are \$30,000, then

$$\text{Accounts Receivable Turnover} = \frac{\$120,000}{\$30,000} = 4$$

On average, Accounts Receivable turn over 4 times a year, or every 91 days.

The 91-day turnover period is found by dividing a year, 365 days, by the Accounts Receivable Turnover ratio of 4. This average of 91 days is how long it takes to collect Accounts Receivable. That is fine if our credit terms call for payment 90 days from invoice but not fine if credit terms are 60 days, and it is alarming if credit terms are 30 days.

Accounts Receivable, unlike vintage wines or antiques, do not improve with age. Accounts Receivable Turnover should be in line with credit terms; turnover sliding out of line with credit terms signals increasing danger to liquidity.

Inventory Turnover

Inventory turnover is computed as follows:

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Inventory}}$$

If Cost of Goods Sold is \$100,000 and Inventory is \$20,000, then

$$\text{Inventory Turnover} = \frac{\$100,000}{\$20,000} = 5 \text{ times a year}$$

or about 70 days. Note that the numerator for calculating Accounts Receivable Turnover is Credit Sales but for Inventory Turnover is Cost of Goods Sold. The reason is that both Accounts Receivable and Sales are measured in terms of the selling price of the goods involved. That makes Accounts Receivable Turnover a consistent ratio, where the numerator and denominator are both expressed at selling prices in an “apples-to-apples” manner. Inventory Turnover is also an “apples-to-apples” comparison in that both numerator, Cost of Goods Sold, and denominator, Inventory, are expressed in terms of the cost, not the selling price, of the goods.

In our example, the Inventory Turnover was 5, or about 70 days. Whether this is good or bad depends on industry standards. Companies in the auto-retailing or the furniture-manufacturing industry would accept this ratio. In the supermarket business or in gasoline retailing, however, 5 would fall far

below their norm of about 25 times a year, or roughly every 2 weeks. As with Accounts Receivable Turnover, an Inventory Turnover that is out of line is a red flag.

Accounts Payable Turnover

This measure's equation is:

$$\text{Accounts Payable Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Accounts Payable}}$$

If Cost of Goods Sold is \$100,000 and Accounts Payable is \$16,600, then

$$\text{Accounts Payable Turnover} = \frac{\$100,000}{\$16,600}$$

which is about 6, or around 60 days. Again, note the consistency of the numerator and denominator, both stated at the cost of the goods purchased. Accounts Payable Turnover is evaluated by comparison with industry norms. An Accounts Payable Turnover that is appreciably faster than the industry norm is fine, if liquidity is satisfactory, because prompt payments to suppliers usually earn cash discounts, which in turn lower the Cost of Goods Sold and thus lead to higher income. However, such faster-than-normal Accounts Payable Turnover does diminish liquidity and is therefore unwise when liquidity is tight. Accounts Payable Turnover that is slower than the industry norm enhances liquidity and is therefore wise when liquidity is tight but inadvisable when liquidity is fine, because it sacrifices cash discounts from suppliers and thus reduces income.

This concludes our survey of the ratios relating to short-term liquidity—the current ratio; quick, or acid test, ratio; Accounts Receivable Turnover; Inventory Turnover; and Accounts Payable Turnover.

If these ratios are seriously deficient, our diagnosis may be complete. The subject business may be almost defunct, and even desperate measures may be insufficient to revive it. If these ratios are favorable, then short-term liquidity does not appear to be a threat and the financial doctor should proceed to the next set of tests, which measure long-term solvency.

It is worth noting, however, that there are some rare exceptions to these guidelines. For example, large gas and electric utilities typically have current ratios less than 1 and quick ratios less than 0.5. This is due to utilities' exceptional characteristics:

- They usually require deposits before providing service to customers, and they can shut off service to customers who do not pay on time. Customers are reluctant to go without necessities such as gas and electricity and therefore tend to pay their utility bills ahead of most other bills. These factors sharply reduce the risk of uncollectible accounts receivable for gas and electric utility companies.

- Inventories of gas and electric utility companies are not subject to much risk from changing fashion trends, deterioration, or obsolescence.
- Under regulation, gas and electric utility companies are stable, low-risk businesses, largely free from competition and consistently profitable.

This reduced risk and increased predictability of gas and electric utility companies make short-term liquidity and safety margins less crucial. In turn, the ratios indicating short-term liquidity become less important, because short-term survival is not a significant concern for these businesses.

LONG-TERM SOLVENCY

Long-term solvency focuses on a firm's ability to pay the interest and principal on its long-term debt. There are two commonly used ratios relating to servicing long-term debt. One measures ability to pay interest, the other the ability to repay the principal. The ratio for interest compares the amount of income available for paying interest with the amount of the interest expense. This ratio is called Interest Coverage or Times Interest Earned.

The amount of income available for paying interest is simply earnings before interest and before income taxes. (Business interest expense is deductible for income tax purposes; therefore, income taxes are based on earnings after interest, otherwise known as earnings before income taxes.) Earnings before interest and taxes is known as EBIT. The ratio for Interest Coverage or Times Interest Earned is EBIT/Interest Expense. For instance, assume that EBIT is \$120,000 and interest expense is \$60,000. Then:

$$\text{Interest Coverage or Times Interest Earned} = \frac{\$120,000}{\$60,000} = 2$$

This shows that the business has EBIT sufficient to cover 2 times its interest expense. The cushion, or margin of safety, is therefore quite substantial. Whether a given interest coverage ratio is acceptable depends on the industry. Different industries have different degrees of year-to-year fluctuations in EBIT. Interest coverage of 2 times may be satisfactory for a steady and mature firm in an industry with stable earnings, such as regulated gas and electricity supply. However, when the same industry experiences the uncertain forces of deregulation, earnings may become volatile, and interest coverage of 2 may prove to be inadequate. In more-turbulent industries, such as movie studios and Internet retailers, an interest coverage of 2 may be regarded as insufficient.

The long-term solvency ratio that reflects a firm's ability to repay principal on long-term debt is the "Debt to Equity" ratio. The long-term capital structure of a firm is made up principally of two types of financing: (1) long-term debt and (2) owner equity. Some hybrid forms of financing mix characteristics of debt and equity but usually can be classified as mainly debt or equity in nature. Therefore the distinction between debt and equity is normally clear.

If long-term debt is \$150,000 and equity is \$300,000, then the debt-equity relationship is usually measured as:

$$\begin{aligned}\text{Debt to Equity Ratio} &= \frac{\text{Long-Term Debt}}{\text{Long-Term Debt} + \text{Equity}} \\ &= \frac{\$150,000}{(\$150,000 + \$300,000)} \\ &= 33\frac{1}{3}\%\end{aligned}$$

Long-term debt is frequently secured by liens on property and has priority on payment of periodic interest and repayment of principal. There is no priority for equity, however, for dividend payments or return of capital to owners. Holders of long-term debt thus have a high degree of security in receiving full and punctual payments of interest and principal. But, in good times or bad, whether income is high or low, long-term creditors are entitled to receive no more than these fixed amounts. They have reduced their risk of gain or loss in exchange for more certainty. By contrast, owners of equity enjoy no such certainty. They are entitled to nothing except dividends, if declared, and, in the case of bankruptcy, whatever funds might be left over after all obligations have been paid. Theirs is a totally at-risk investment. They prosper in good times and suffer in bad times. They accept these risks in the hope that in the long run gains will substantially exceed losses.

From the firm's point of view, long-term debt obligations are a burden that must be carried whether income is low, absent, or even negative. But long-term debt obligations are a blessing when income is lush since they receive no more than their fixed payments, even if incomes soar. The greater the proportion of long-term debt and smaller the proportion of equity in the capital structure, the more the incomes of the equity holders will fluctuate according to how good or bad times are. The proportion of long-term debt to equity is known as leverage. The greater the proportion of long-term debt to equity, the more leveraged the firm is considered to be. The more leveraged the firm is, the more equity holders prosper in good times and the worse they fare in bad times. Because increased leverage leads to increased volatility of incomes, increased leverage is regarded as an indicator of increased risk, though a moderate degree of leverage is thus considered desirable. The debt-to-equity ratio is evaluated according to industry standards and each industry's customary volatility of earnings. For example, a debt-to-equity ratio of 80% would be considered conservative in banking (where leverage is customarily above 80% and earnings are relatively stable) but would be regarded as extremely risky for toy manufacturing or designer apparel (where earnings are more volatile). The well-known junk bonds are an example of long-term debt securities where leverage is considered too high in relation to earnings volatility. The increased risk associated with junk bonds explains their higher interest yields. This illustrates the general financial principle that the greater the risk, the higher the expected return.

In summary, the ratios used to assess long-term solvency are Interest Coverage and Long-Term Debt to Equity.

Next, we consider the ratios for analyzing profitability.

PROFITABILITY

Profitability is the lifeblood of a business. Businesses that earn incomes can survive, grow, and prosper. Businesses that incur losses cannot stay in operation, and will last only until their cash runs out. Therefore, in order to assess business viability, it is important to analyze profitability.

When analyzing profitability, it is usually done in two phases, which are:

1. Profitability in relation to sales.
2. Profitability in relation to investment.

Profitability in Relation to Sales

The analysis of profitability in relation to sales recognizes the fact that:

$$\text{Income} = \text{Sales} - \text{Expenses}$$

or, rearranging terms:

$$\text{Sales} = \text{Expenses} + \text{Income}$$

Therefore, Expenses and Income are measured in relation to their sum, which is Sales. The expenses, in turn, may be broken down by line item. As an example, we use the Nutrivite Income Statement for the first three years of operation.

Income Statements for the Years Ending December 31

	Year 1	Year 2	Year 3
Sales	\$720,000	\$800,000	\$900,000
Less cost of goods sold	<u>480,000</u>	<u>530,000</u>	<u>600,000</u>
Gross profit	<u>\$240,000</u>	<u>\$270,000</u>	<u>\$300,000</u>
Less expenses			
Salaries	\$ 40,000	\$ 49,600	\$ 69,000
Rent	36,000	49,400	54,400
Phone and utilities	14,400	19,400	26,000
Depreciation	3,600	3,600	3,600
Interest	<u>6,000</u>	<u>6,000</u>	<u>6,000</u>
Total expenses	<u>\$100,000</u>	<u>\$128,000</u>	<u>\$159,000</u>
Income before taxes	\$140,000	\$142,000	\$141,000
Income tax expense (40%)	<u>56,000</u>	<u>56,800</u>	<u>56,400</u>
Net income	<u>\$ 84,000</u>	<u>\$ 85,200</u>	<u>\$ 84,600</u>

These income statements show a steady increase in Sales and Gross Profits each year. Despite this favorable result, the Net Income has remained virtually unchanged at about \$84,000 for each year. To learn why this is the case, we need to convert expenses and income to percentages of sales. The income statements converted to percentages of sales are known as “common size” income statements and look like the following:

**Common Size Income Statements for the
Years Ending December 31**

	Year 1	Year 2	Year 3	<i>Change Years 1–3</i>
Sales	100.0%	100.0%	100.0%	0.0%
Less cost of goods sold	66.7	66.2	66.7	0.0
Gross profit	<u>33.3%</u>	<u>33.8%</u>	<u>33.3%</u>	<u>0.0%</u>
Less expenses				
Salaries	5.6%	6.2%	7.7%	2.1%
Rent	5.0	6.2	6.0	1.0
Phone and utilities	2.0	2.4	2.9	0.9
Depreciation	0.5	0.4	0.4	–0.1
Interest	0.8	0.8	0.7	–0.1
Total expenses	<u>13.9%</u>	<u>16.0%</u>	<u>17.7%</u>	<u>3.8%</u>
Income before taxes	19.4%	17.8%	15.6%	–3.8%
Income tax expense (40%)	7.8	7.2	6.2	–1.6
Net income	<u>11.6%</u>	<u>10.6%</u>	<u>9.4%</u>	<u>–2.2%</u>

From the percentage figures above it is easy to see why the Net Income failed to increase, despite the substantial growth in Sales and Gross Profit. Total Expenses rose by 3.8 percentage points, from 13.9% of Sales in Year 1 to 17.7% of Sales in Year 3. In particular, the increase in Total Expenses relative to Sales was driven mainly by increases in Salaries (2.1 percentage points), Rent (1 percentage point) and Phone and Utilities (0.9 percentage point). As a result, Income before Taxes relative to Sales fell by 3.8 percentage points from Year 1 to Year 3. The good news is that the drop in Income before Taxes caused a reduction of Income Tax Expense relative to Sales of 1.6 percentage points from Year 1 to Year 3. The net effect was a drop in Net Income, relative to Sales, of 2.2 percentage points from Year 1 to Year 3.

This useful information shows that:

1. The profit stagnation is not related to Sales or Gross Profit.
2. It is entirely due to the disproportionate increase in Total Expenses.
3. Specific causes are the expenses for Salaries, Rent, and Phone and Utilities.
4. Action to correct the profit slump requires analyzing these particular expense categories.

The use of percent-of-sales ratios is a simple but powerful technique for analyzing profitability. Generally used ratios include:

- Gross Profit.
- Operating Expenses:
 - a. In total.
 - b. Individually.
- Selling, General, and Administrative Expenses (often called SG&A).
- Operating Income.
- Income before Taxes.
- Net Income.

The second category of profitability ratios is profitability in relation to investment.

Profitability in Relation to Investment

To earn profits, usually a firm must invest capital in items such as plant, equipment, inventory, and/or research and development. Up to this point we have analyzed profitability without considering invested capital. That was a useful simplification in the beginning, but, since profitability is highly dependent on the investment of capital, it is now time to bring invested capital into the analysis.

We start with the balance sheet. Recall that Working Capital is Current Assets less Current Liabilities. So we can simplify the balance sheet by including a single category for Working Capital in place of the separate categories for Current Assets and Current Liabilities. An example of a simplified balance sheet follows:

Example Company

Simplified Balance Sheet as of December 31, 200X

Assets		Liabilities and Equity	
Working capital	\$ 40,000	Long-term debt	\$ 30,000
Fixed assets, net	80,000	Equity	90,000
Total assets	\$120,000	Liabilities and equity	\$120,000

A simplified Income Statement for Example Company for the year 200X is summarized below:

Income before interest and taxes (EBIT)	\$36,000
Less interest expense	3,000
Income before income taxes	33,000
Less income taxes (40%)	13,200
Net income	\$19,800

The first ratio we will consider is EBIT (also known as Operating Profit) to Total Assets. This ratio is often referred to as Return on Total Assets (ROTA), and it can be expressed as either before tax (more usual) or after tax. From the Example Company, the calculations are as follows:

Return on Total Assets	Before Tax	After Tax
EBIT/total assets = \$36,000/\$120,000	30%	
EBIT/total assets = \$21,600/\$120,000		18%

This ratio indicates the raw (or basic) earning power of the business. Raw earning power is independent of whether assets are financed by equity or debt. This independence exists because:

1. The numerator (EBIT) is free of interest expense.
2. The denominator, Total Assets, is equal to total capital regardless of how much capital is equity and how much is debt.

Independence allows the ratio to be measured and compared:

- For any business, from one period to another.
- For any period, from one business to another.

These comparisons remain valid, even if the debt to equity ratio may vary from one period to the next and from one business to another.

Now that we have measured basic earning power regardless of the debt to equity ratio, our next step is to take the debt to equity ratio into consideration. First, it is important to note that long-term debt is normally a less expensive form of financing than equity because:

1. Whereas Dividends paid to stockholders are not a tax deduction for the paying company, Interest Expense paid on Long-Term Debt is. Therefore the net after-tax cost of Interest is reduced by the related tax deduction. This is not the case for Dividends, which are not deductible.
2. Debt is senior to equity, which means that debt obligations for interest and principal must be paid in full before making any payments on equity, such as dividends. This makes debt less risky than equity to the investors, and so debt holders are willing to accept a lower rate of return than holders of the riskier equity securities.

This contrast can be seen from the simplified financial statements of Example Company above. The interest of \$3,000 on the Long-Term Debt of \$30,000 is 10% before tax. But after the 40% tax deduction the interest after tax is only \$1,800 (\$3,000 – 40% tax on \$3,000), and this \$1,800 represents an after-tax interest rate of 6% on the Long-Term Debt of \$30,000. For comparison let us turn to the rate of return on the Equity. The Net Income, \$19,800, represents a 22% rate of return on the Equity of \$90,000. This 22% rate of return is a financial ratio known as Return on Equity, sometimes abbreviated *ROE*. Return on Equity is an important and widely used financial ratio.

There is much more to be said about Return on Equity, but first it may be helpful to recap briefly the main points we have covered about profitability in relation to investment.

The EBIT of \$36,000 represented a 30% return on total assets, before income tax, and this \$36,000 was shared by three parties, as follows:

1. Long-Term Debt holders received Interest of \$3,000, representing an interest cost of 10% before income tax, and 6% after income tax.
2. City, state, and/or federal governments were paid Income Taxes of \$13,200.
3. Stockholder Equity increased by the Net Income of \$19,800, which represented a 22% Return on Equity.

If there had been no Long-Term Debt, there would have been no Interest Expense. The EBIT of \$36,000 less income tax at 40% would provide a Net Income of \$21,600, which is larger than the prior Net Income of \$19,800 by \$1,800. This \$1,800 equals the \$3,000 amount of Interest before tax less the 40% tax, which is \$1,200. In the absence of Long-Term Debt, the Total Assets would have been funded entirely by equity, which would have required equity to be \$120,000. In turn, with Net Income of \$21,600, the revised Return on Equity would be

$$\frac{\text{Net Income}}{\text{Equity}} = \frac{\$21,600}{\$120,000} = 18\%$$

The increase in the Return on Equity, from this 18% to 22% was attributable to the use of Long-Term Debt. The Long-Term Debt had a cost after taxes of only 6% versus the Return on Assets after tax of 18%. When a business earns 18% after tax, it is profitable to borrow at 6% after tax. This in turn improves the Return on Equity from 18% to 22%, which illustrates the advantage of leverage: A business earning 18% on assets can, with a little leverage, earn 22% on equity.

But what if EBIT is only \$3,000? The entire \$3,000 would be used up to pay the interest of \$3,000 on the Long-Term Debt. The Net Income would be \$0, resulting in a 0% Return on Equity. This illustrates the disadvantage of leverage. Without Long-Term Debt, the EBIT of \$3,000 less 40% tax would result in Net Income of \$1,800. Return on Equity would be \$1,800 divided by equity of \$120,000, which is 1.5%. A Return on Equity of 1.5% may not be impressive, but it is certainly better than the 0% that resulted with Long-Term Debt.

Leverage is a fair-weather friend: It boosts Return on Equity when earnings are robust but depresses ROE when earnings are poor. Leverage makes the good times better but the bad times worse. Therefore, it should be used in moderation and in businesses with stable earnings. In businesses with volatile earnings, leverage should be used sparingly and cautiously.

We have now described all of the main financial ratios, and they are summarized in Exhibit 1.1.

EXHIBIT 1.1 Summary of main financial ratios.

Ratio	Numerator	Denominator
<i>Short-Term Liquidity</i>		
Current ratio	Current assets	Current liabilities
Quick ratio (acid test)	Current assets (excluding inventory)	Current liabilities
Receivables turnover	Credit sales	Accounts receivable
Inventory turnover	Cost of sales	Inventory
Payables turnover	Cost of sales	Accounts payable
<i>Long-Term Solvency</i>		
Interest coverage	EBIT	Interest on L/T debt
Debt to capital	Long-term debt	L/T debt + equity
<i>Profitability on Sales</i>		
Gross profit ratio	Gross profit	Sales
Operating expense ratio	Operating expenses	Sales
SG&A expense ratio	SG&A expenses	Sales
EBIT ratio	EBIT	Sales
Pretax income ratio	Pretax income	Sales
Net income ratio	Net income	Sales
<i>Profitability on Investment</i>		
Return on total assets:		
Before tax	EBIT	Total assets ^a
After tax	EBIT times (1-tax rate)	Total assets ^a
Return on equity	Net income: Common ^b	Common equity

^a Total Assets = Fixed Assets + Working Capital (Current Assets less Current Liabilities)

^b Net Income less Preferred Dividends

USING FINANCIAL RATIOS

Some important points to keep in mind when using financial ratios are:

- Whereas all balance sheet numbers are end-of-period numbers, all income statement numbers relate to the entire period. For example, when calculating the ratio for Accounts Receivable Turnover, we use a numerator of Credit Sales, which is an entire-period number from the income statement, and a denominator of Accounts Receivable, which is an end-of-period number from the balance sheet. To make this an apples-to-apples ratio, the Accounts Receivable can be represented by an average of the beginning-of-year and end-of-year figures for Accounts Receivable. This average is closer to a mid-year estimate of Accounts Receivable and therefore is more comparable to the entire-period numerator, Credit Sales. Because using averages of the beginning-of-year and end-of-year figures for balance sheet numbers helps to make ratios more of an apples-to-apples

comparison, averages should be used for all balance sheet numbers when calculating financial ratios.

- Financial ratios can be no more reliable than the data with which the ratios were calculated. The most reliable data is from audited financial statements, if the audit reports are clean and unqualified.
- Financial ratios cannot be fully considered without yardsticks of comparison. The simplest yardsticks are comparisons of an enterprise's current financial ratios with those from previous periods. Companies often provide this type of information in their financial reporting. For example, Apple Computer Inc., recently disclosed the following financial quarterly information, in millions of dollars:

Quarter	4	3	2	1
Net sales	\$1,870	\$1,825	\$1,945	\$2,343
Gross margin	\$1,122	\$1,016	\$1,043	\$1,377
Gross margin	25%	30%	28%	28%
Operating costs	\$ 383	\$ 375	\$ 379	\$ 409
Operating income	\$ 64	\$ 168	\$ 170	\$ 100
Operating income	4%	9%	9%	4%

This table compares four successive quarters of information, which makes it possible to see the latest trends in such important items as Sales, and Gross Margin and Operating Income percentages. Other types of comparisons of financial ratios include:

1. *Comparisons with competitors.* For example, the financial ratios of Apple Computer could be compared with those of Compaq, Dell, or Gateway.
2. *Comparisons with industry composites.* Industry composite ratios can be found from a number of sources, such as:
 - a. The *Almanac of Business and Industrial Financial Ratios*, authored by Leo Troy and published annually by Prentice-Hall (Paramus, NJ). This publication uses Internal Revenue Service data for 4.6 million U.S. corporations, classified into 179 industries and divided into categories by firm size, and reporting 50 different financial ratios.
 - b. Risk Management Associates: Annual Statement Studies. This is a database compiled by bank loan officers from the financial statements of more than 150,000 commercial borrowers, representing more than 600 industries, classified by business size, and reporting 16 different financial ratios. It is available on the Internet at www.rmahq.org.
 - c. Financial ratios can also be obtained from other firms who specialize in financial information, such as Dun & Bradstreet, Moody's, and Standard & Poor's.

COMBINING FINANCIAL RATIOS

Up to this point we have considered financial ratios one at a time. However, there is a useful method for combining financial ratios known as Dupont¹ analysis. To explain it, we first need to define some financial ratios, together with their abbreviations, as follows:

Ratio	Calculation	Abbreviation
Profit margin ²	Net income/sales	NI/S
Asset turnover	Sales/total assets	S/TA
Return on assets ³	Net income/total assets	NI/TA
Leverage	Total assets/common equity	TA/CE
Return on equity	Net income/common equity	NI/CE

Now, these financial ratios can be combined in the following manner:

$$\text{Profit Margin} \times \text{Asset Turnover} = \text{Return on Assets}$$

$$\frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total Assets}} = \frac{\text{Net Income}}{\text{Total Assets}}$$

and

$$\text{Return on Assets} \times \text{Leverage} = \text{Return on Equity}$$

$$\frac{\text{Net Income}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Common Equity}} = \frac{\text{Net Income}}{\text{Common Equity}}$$

In summary:

$$\frac{\text{NI}}{\text{S}} \times \frac{\text{S}}{\text{TA}} \times \frac{\text{TA}}{\text{CE}} = \frac{\text{NI}}{\text{CE}}$$

This equation says that Profit Margin \times Asset Turnover \times Leverage = Return on Equity.

Also, this equation provides a financial approach to business strategy. It recognizes that the ultimate goal of business strategy is to maximize stockholder value, that is, the market price of the common stock. This goal requires maximizing the return on common equity. The Dupont equation above breaks the return on common equity into its three component parts: Profit Margin (Net Income/Sales), Asset Turnover (Sales/Total Assets), and Leverage (Total Assets/Common Equity). If any one of these three ratios can be improved (without harm to either or both of the remaining two ratios), then the return on common equity will increase. A firm thus has specific strategic targets:

- Profit Margin improvement can be pursued in a number of ways. On the one hand, revenues might be increased or costs decreased by:

1. Raising prices perhaps by improving product quality or offering extra services. Makers of luxury cars have done this successfully by providing free roadside assistance and loaner cars when customer cars are being serviced.
 2. Maintaining prices but reducing the quantity of product in the package. Candy bar manufacturers and other makers of packaged foods often use this method.
 3. Initiating or increasing charges for ancillary goods or services. For example, banks have substantially increased their charges to stop checks and for checks written with insufficient funds. Distributors of computers and software have instituted fees for providing technical assistance on their help lines and for restocking returned items.
 4. Improving the productivity and efficiency of operations.
 5. Cutting costs in a variety of ways.
- Asset Turnover may be improved in ways such as:
 1. Speeding up the collection of accounts receivable.
 2. Increasing inventory turnover, perhaps by adopting “just in time” inventory methods.
 3. Slowing down payments to suppliers, thus increasing accounts payable.
 4. Reducing idle capacity of plant and equipment.
 - Leverage may be increased, within prudent limits, by means such as:
 1. Using long-term debt rather than equity to fund additions to plant, property, and equipment.
 2. Repurchasing previously issued common stock in the open market.

The chief advantage of using the Dupont formula is to focus attention on specific initiatives that will improve return on equity by means of enhancing profit margins, increasing asset turnover, or employing greater financial leverage within prudent limits.

In addition to the Dupont formula, there is another way to combine financial ratios, one that serves another useful purpose—predicting solvency or bankruptcy for a given enterprise. It uses what is known as the z score.

THE Z SCORE

Financial ratios are useful not only to assess the past or present condition of an enterprise, but also to reliably predict its future solvency or bankruptcy. This type of information is of critical importance to present and potential creditors and investors. There are several different methods of analysis for obtaining this predictive information. The best-known and most time-tested is the z score, developed for publicly traded manufacturing firms by Professor

Edward Altman of New York University. Its reliability can be expressed in terms of the two types of errors to which all predictive methods are vulnerable, namely:

1. Type I error: predicting solvency when in fact a firm becomes bankrupt (a false positive).
2. Type II error: predicting bankruptcy when in fact a firm remains solvent (a false negative).

The predictive error rates for the Altman z score have been found to be as follows:

Years Prior to Bankruptcy	% False Positives	% False Negatives
1	6	3
2	18	6

Given the inherent difficulty of predicting future events, these error rates are relatively low, and therefore the Altman z score is generally regarded as a reasonably reliable bankruptcy predictor. The z score is calculated from financial ratios in the following manner:

$$z = 1.2 \times \frac{\text{Working Capital}}{\text{Total Assets}} + 1.4 \times \frac{\text{Retained Earnings}}{\text{Total Assets}} + 3.3 \times \frac{\text{EBIT}}{\text{Total Assets}} + 0.6 \times \frac{\text{Equity at Market Value}}{\text{Debt}} + 1.0 \times \frac{\text{Sales}}{\text{Total Assets}}$$

A z score above 2.99 predicts solvency; a z score below 1.81 predicts bankruptcy; z scores between 1.81 and 2.99 are in a gray area, with scores above 2.675 suggesting solvency and scores below 2.675 suggesting bankruptcy.

Since the z score uses equity at market value, it is not applicable to private firms, which do not issue marketable securities. A variation of the z score for private firms, known as the z' score, has been developed that uses the book value of equity rather than the market value. Because of this modification, the multipliers in the formula have changed from those in the original z score, as have the scores that indicate solvency, bankruptcy, or the gray area. For non-manufacturing service-sector firms, a further variation in the formula has been developed. It omits the variable for asset turnover and is known as the z'' score. Once again, the multipliers in the formula have changed from those in the z' score, and so have the scores that indicate solvency, bankruptcy, or the gray area.

Professor Altman later developed a bankruptcy predictor more refined than the z score and named it ZETA. ZETA uses financial ratios for times interest earned, return on assets (the average and the standard deviation), and debt to equity. Other details of ZETA have not been made public. ZETA is proprietary and is made available to users for a fee.

SUMMARY AND CONCLUSIONS

Financial statements contain critical business information and are used for many different purposes by many different parties inside and outside the business. Clearly all successful businesspeople should have a good basic understanding of financial statements and of the main financial ratios. For further information and explanations about financial statements, see the following chapters in this book:

Chapter 2: Analyzing Business Earnings

Chapter 6: Forecasts and Budgets

Chapter 15: The Board of Directors

Chapter 18: Business Valuation

INTERNET LINKS

Some useful Internet links on financial statements and financial ratios are:

www.aicpa.org	Web site for the American Institute of Certified Public Accountants.
www.freedgar.com	This site lets users download financial statements and other key financial information filed with the SEC and maintained in Edgar (the name of its database) for all corporations with securities that are publicly traded in the United States. This service is free of charge. Another Web site, Spredgar.com, displays financial ratios calculated from freedgar.com.
www.10k.com	Provides free downloads of annual reports (which include financial statements) filed with the SEC for all corporations with securities that are publicly traded in the United States.
www.rmahq.org	Web site of the Risk Management Association (RMA) that contains financial ratios classified by size of firm for more than 600 industries.
www.cpaclass.com	Information and instruction on many finance and accounting topics.
www.financeprofessor.com	Information and instruction on many finance and accounting topics.
www.smallbusiness.org	Information and instruction from public television on many finance and accounting topics.

www.wmw.com

The World Market Watch (wmw) provides business research information, including financial ratios, for many companies and 74 different industries.

FOR FURTHER READING

Anthony, Robert N., *Essentials of Accounting*, 6th ed. (Boston, MA: Addison-Wesley, 1996).

Brealey, Richard A., and Stewart C. Myers, *Fundamentals of Corporate Finance*, 3rd ed. (New York: McGraw-Hill, 2001).

Fridson, Martin S., *Financial Statement Analysis: A Practitioner's Guide*, 2nd ed. (New York: John Wiley, 1995).

Simini, Joseph P., *Balance Sheet Basics for Nonfinancial Managers* (New York: John Wiley, 1990).

Tracy, John A., *How to Read a Financial Report: Wringing Cash Flow and Other Vital Signs Out of the Numbers*, 4th ed. (New York: John Wiley, 1994).

Troy, Leo, *Almanac of Business and Industrial Financial Ratios* (Paramus, NJ: Prentice-Hall, Annual).

Financial Studies of the Small Business (Winter Haven, FL: Financial Research Associates, Annual).

Industry Norms and Key Business Ratios (New York: Dun & Bradstreet, Annual).

RMA Annual Statement Studies (Philadelphia, PA: Risk Management Association, Annual).

Standard and Poor's Industry Surveys (New York: Standard & Poor's, Quarterly).

NOTES

1. The name comes from its original use at the Dupont Corporation.
2. After income taxes.
3. Ibid.

2 ANALYZING BUSINESS EARNINGS

Eugene E. Comiskey

Charles W. Mulford

A special committee of the American Institute of Certified Public Accountants (AICPA) concluded the following about earnings and the needs of those who use financial statements:

Users want information about the portion of a company's reported earnings that is stable or recurring and that provides a basis for estimating sustainable earnings.¹

While users may want information about the stable or recurring portion of a company's earnings, firms are under no obligation to provide this earnings series. However, generally accepted accounting principles (GAAPs) require separate disclosure of selected nonrecurring revenues, gains, expenses, and losses on the face of the income statement or in notes to the financial statements. Further, the Securities and Exchange Commission (SEC) requires the disclosure of material nonrecurring items.

The prominence given the demand by users for information on nonrecurring items in the above AICPA report is, no doubt, driven in part by the explosive growth in nonrecurring items over the past decade. The acceleration of change together with a passion for downsizing, rightsizing, and reengineering have fueled this growth. The Financial Accounting Standards Board's (FASB) issuance of a number of new accounting statements that require recognition of previously unrecorded expenses and more timely recognition of declines in asset values has also contributed to the increase in nonrecurring items.

A limited number of firms do provide, on a voluntary basis, schedules that show their results with nonrecurring items removed. Mason Dixon Bancshares

provides one such example. Exhibit 2.1 shows a Mason Dixon schedule that adjusts reported net income to a revised earnings measure from which nonrecurring revenues, gains, expenses, and losses have been removed. This is the type of information that the previously quoted statement of the AICPA's Special Committee calls for.

Notice the substantial number of nonrecurring items that Mason Dixon removed from reported net income in order to arrive at a closer measure of core or sustainable earnings. In spite of the number of nonrecurring items removed from reported net income, the revised earnings differ by only about 6% from the original reported net income.

Firms that record either a large nonrecurring gain or loss frequently attempt to offset its effect on net income by recording a number of offsetting items. In the case of Mason Dixon, the large gain on the sale of branches if not offset may raise earnings expectations to levels that are unattainable. Alternatively, the recording of offsetting charges may be seen as a way to relieve future earnings of their burden. We do not claim that this was done in the case of Mason Dixon Bancshares, but its results are consistent with this practice.

Though exceptions like the Mason Dixon Bancshares example do occur, the task of developing information on a firm's recurring or sustainable results normally falls to the statement user. Companies do provide, to varying degrees, the raw materials for this analysis; however, the formidable task of creating—an analysis comparable to that provided by Mason Dixon—is typically left to the user. The central goal of this chapter is to help users develop the background and skills to perform this critical aspect of earnings analysis. The chapter will discuss nonrecurring items and outline efficient approaches for locating them in financial statements and associated notes. As key background we will also discuss and illustrate income statement formats and other issues of classification. Throughout the chapter, we illustrate concepts using information drawn from

EXHIBIT 2.1 Core business net income: Mason Dixon Bancshares Inc., year ended December 31 (in thousands).

	1998
Reported net income	\$10,811
Adjustments, add (deduct), for nonrecurring items:	
Gain on sale of branches	(6,717)
Special loan provision for loans with Year 2000 risk	918
Special loan provision for change in charge-off policy	2,000
Reorganization costs	465
Year 2000 costs	700
Impairment loss on mortgage sub-servicing rights	841
Income tax expense on the nonrecurring items above	1,128
Core (sustainable) net income	<u>\$10,146</u>

SOURCE: Mason Dixon Bancshares Inc., annual report, December 1998. Information obtained from *Disclosure, Inc., Compact D/SEC: Corporate Information on Public Companies Filing with the SEC* (Bethesda, MD: Disclosure Inc., June 2000).

the financial statements of many companies. As a summary exercise, a comprehensive case is provided that removes all nonrecurring items from reported results to arrive at a sustainable earnings series.

THE NATURE OF NONRECURRING ITEMS

Defining *nonrecurring items* is difficult. Writers often begin with phrases like “unusual” or “infrequent in occurrence.” Donald Keiso and Jerry Weygandt in their popular intermediate accounting text use the term *irregular* to describe what most statement users would consider nonrecurring items.² For our purposes, irregular or nonrecurring revenues, gains, expenses, and losses are not consistent contributors to results, in terms of either their presence or their amount. This is the manner in which we use the term *nonrecurring items* throughout this chapter.

From a security valuation perspective, nonrecurring items have a smaller impact on share price than recurring elements of earnings. Some items, such as restructuring charges, litigation settlements, flood losses, product recall costs, embezzlement losses, and insurance settlements, can easily be identified as nonrecurring. Other items may appear consistently in the income statement but vary widely in sign (revenue versus expense, gain versus loss) and amount. For example, the following gains on the disposition of flight equipment were reported over a number of years by Delta Air Lines:³

1992	\$35 million
1993	65 million
1994	2 million
1995	0 million
1996	2 million

The gains averaged about \$25 million over the 10 years ending in 1996 and ranged from a loss of \$1 million (1988) to a gain of \$65 million (1993). The more recent five years typify the variability in the amounts for the entire 10-year period. These gains did recur, but they are certainly irregular in amount.

There are at least three alternative ways to handle this line item in revising results to identify sustainable or recurring earnings. First, one could simply eliminate the line item based on its highly inconsistent contribution to results.⁴ Second, one could include the line item at its average value (\$25 million for the period 1987 to 1996) for some period of time. Third, one could attempt to acquire information on planned aircraft dispositions that would make possible a better prediction of the contribution of gains on aircraft dispositions to future results. While the last approach may appear to be the most appealing, it may prove to be difficult to implement because of lack of information, and it may also be less attractive when viewed from a cost-benefit perspective. In general, we would normally recommend either removing the gains

or simply employing a fairly recent average value for the gains in making earnings projections.

After 1996, Delta Air Lines disclosed little in the way of nonrecurring gains on the sale of flight equipment. Its 2000 annual report, which covered the years from 1998 to 2000, did not disclose any gains or losses on the disposition of flight equipment.⁵ With hindsight, the first option, which would remove all of the gains and losses on flight equipment, may have been the most appropriate alternative.

The Goodyear Tire and Rubber Company provides a timeless example of the impact of nonrecurring items on the evaluation of earnings performance. Exhibit 2.2 shows pretax results for Goodyear, with and without losses on foreign exchange.

As with Delta Air Lines, it may seem questionable to characterize as nonrecurring exchange losses that appear repeatedly. However, in line with the key characteristics of nonrecurring items given earlier, Goodyear's foreign exchange losses are both irregular in amount and unlikely to be consistent contributors to results in future years. Across the period 1993 to 1995 the reduction in foreign exchange losses contributed to Goodyear's pretax results by \$35.5 million in 1994 and \$60.2 million in 1995. That is, the entire \$60.1 million increase in earnings for 1995 could be attributed to the \$60.2 million decline in foreign exchange losses. The only way that the foreign exchange line could contribute a further \$60.2 million to pretax earnings in 1996 would be for Goodyear to produce a foreign exchange gain of \$42.8 million ($\$60.2 - \17.4).⁶

Other examples of irregular items of revenue, gain, expense, and loss abound. For example, there were temporary revenue increases and decreases associated with the Gulf War. ("Sales to the United States government increased substantially during the Persian Gulf War. However, sales returned to more normal levels in the second half of the year."⁷) Temporary revenue increases have been associated with expanded television sales due to World Cup

EXHIBIT 2.2 The Goodyear Tire and Rubber Company, results with and without foreign-exchange losses, years ended December 31 (in millions).

	1993	1994	1995
Income before income taxes, extraordinary item and cumulative effect of accounting change	\$784.9	\$865.7	\$925.8
Add back foreign exchange losses	<u>113.1</u>	<u>77.6</u>	<u>17.4</u>
Income exclusive of foreign-exchange losses	<u>\$898.0</u>	<u>\$943.3</u>	<u>\$943.2</u>
Percentage income increase:			
Income as reported		10.3%	6.9%
Income exclusive on foreign-exchange losses		5.0%	0.0%

SOURCE: The Goodyear Tire and Rubber Company, annual report, December 1995, 24.

soccer. Temporary increases or decreases in earnings have resulted from adjustments to loan loss provisions resulting from economic downturns and subsequent recoveries in the financial services industry. Most recently, there have been widely publicized problems with tires produced for sports utility vehicles that will surely create substantial nonrecurring increases in legal and warranty expenses.

Identifying nonrecurring or irregular items is not a mechanical process; it calls for the exercise of judgment and involves both line items and as the period-to-period behavior of individual income statement items.

THE PROCESS OF IDENTIFYING NONRECURRING ITEMS

Careful analysis of past financial performance aimed at removing the effects of nonrecurring items is a more formidable task than one might suspect. This task would be fairly simple if (1) there was general agreement on just what constitutes a nonrecurring item and (2) if most nonrecurring items were prominently displayed on the face of the income statement. However, neither is the case. Some research suggests that fewer than one-fourth of nonrecurring items are likely to be found separately disclosed in the income statement.⁸ Providing guidance for locating the remaining three-fourths is a key goal of this chapter.

Identifying Nonrecurring Items: An Efficient Search Procedure

The search sequence outlined in the following discussion locates a high cumulative percentage of material nonrecurring items and does so in a cost-effective manner. Search cost, mainly in time spent by the financial analyst, is an important consideration. Time devoted to this task is not available for another and, therefore, there is an *opportunity cost* to consider. The discussion and guidance that follows are organized around this recommended search sequence (see Exhibit 2.3). Following only the first five steps in this search sequence is likely to locate almost 60% of all nonrecurring items.⁹ Continuing through steps six and seven will typically increase this location percentage. However, the 60% discovery rate is higher if the focus is only on *material* nonrecurring items. The nonrecurring items disclosed in other locations through steps 6 and 7 are fewer in number and normally less material than those initially found through the first five.

NONRECURRING ITEMS IN THE INCOME STATEMENT

An examination of the income statement, the first step in the search sequence, requires an understanding of the design and content of contemporary income statements. This knowledge will aid in the location and analysis of nonrecurring

EXHIBIT 2.3 Efficient search sequence for nonrecurring items.

Search Step	Search Location
1	Income statement.
2	Statement of cash flows—operating activities section only.
3	Inventory note, generally assuming that the firm employs the LIFO inventory method. However, even with non-LIFO firms, inventory notes may reveal inventory write-downs.
4	Income tax note, with attention focused on the tax-reconciliation schedule.
5	Other income (expense) note in cases where this balance is not detailed on the face of the income statement.
6	MD&A of Financial Condition and Results of Operations—a Securities and Exchange Commission requirement and therefore available only for public companies.
7	Other notes which often include nonrecurring items:
<i>Note</i>	<i>Nonrecurring items revealed</i>
a. Property and equipment	Gains and losses on asset sales
b. Long-term debt	Foreign currency and debt-retirement gains and losses.
c. Foreign currency	Foreign currency gains and losses
d. Restructuring	Current and prospective impact of of restructuring activities
e. Contingencies	Prospective revenues and expenses
f. Segment disclosures	Various nonrecurring items
g. Quarterly financial data	Various nonrecurring items

components of earnings. Generally accepted accounting principles (GAAPs) determine the structure and content of the income statement. Locating nonrecurring items in the income statement is a highly efficient and cost-effective process. Many nonrecurring items will be prominently displayed on separate lines in the statement. Further, leads to other nonrecurring items, disclosed elsewhere, may be discovered during this process. For example, a line item that summarizes items of other income and expense may include an associated note reference detailing its contents. These notes should always be reviewed—step 5 in the search sequence—because they will often reveal a wide range of nonrecurring items.

Alternative Income Statement Formats

Examples of the two principal income statement formats under current GAAPs are presented below. The income statement of Shaw Industries Inc., in Exhibit 2.4 is *single step* and that of Toys “R” Us Inc. in Exhibit 2.5 is *multistep*. An annual survey of financial statements conducted by the American Institute of Certified Public Accountants (AICPA) reveals that about one-third of the 600 companies in its survey use the single-step format and the other two-thirds the multistep.¹⁰

EXHIBIT 2.4 Consolidated single-step statements of income: Shaw Industries Inc. (in thousands).

	Year Ended		
	Jan. 3 1998	Jan. 2 1999	Jan. 1 2000
Net sales	\$3,575,774	\$3,542,202	\$4,107,736
Cost of sales	\$2,680,472	\$2,642,453	\$3,028,248
Selling, general and administrative	722,590	620,878	627,075
Charge to record loss on sale of residential retail operations, store closing costs and write-down of certain assets	—	132,303	4,061
Charge to record plant closing costs	—	—	1,834
Pre-opening expenses	3,953	—	—
Charge to record store closing costs	36,787	—	—
Write-down of U.K. assets	47,952	—	—
Interest, net	60,769	62,553	62,812
Loss on sale of equity securities	—	22,247	—
Other expense (income), net	(7,032)	4,676	1,319
Income before income taxes	30,283	57,092	382,387
Provision for income taxes	5,586	38,407	157,361
Income before equity in income of joint ventures	24,697	18,685	225,026
Equity in income of joint ventures	4,262	1,947	2,925
Net income	<u>\$ 28,959</u>	<u>\$ 20,632</u>	<u>\$ 227,951</u>

Note: Per share amounts omitted.

SOURCE: Shaw Industries Inc., annual report, January 2000, 24.

The distinguishing feature of the multistep statement is that it provides intermediate earnings subtotals that are designed to measure pretax operating performance. In principle, operating income should be composed almost entirely of recurring items of revenue and expense, which result from the main operating activities of the firm. In practice, numerous material nonrecurring items are commonly included in operating income. For example, “restructuring” charges, one of the most common nonrecurring items of the past decade, is virtually always included in operating income.

Shaw Industries’ single-step income statement does not partition results into intermediate subtotals. For example, there are no line items identified as either “gross profit” or “operating income.” Rather, all revenues and expenses are separately listed and “income before income taxes” is computed in a single step as total expenses are deducted from total revenues. However, the Toys “R” Us multistep income statement provides both gross profit and operating income/(loss) subtotals.

Note that Shaw Industries has a number of different nonrecurring items in its income statements. While they vary in size, the following would normally be considered to be nonrecurring: charges related to residential retail operations,

**EXHIBIT 2.5 Consolidated multi-step statements of earnings:
Toys "R" Us Inc. (in millions).**

	Year Ended		
	Jan. 31 1998	Jan. 30 1999	Jan. 29 2000
Net sales	\$11,038	\$11,170	\$11,862
Cost of sales	7,710	8,191	8,321
<i>Gross Profit</i>	3,328	2,979	3,541
Selling, general and administrative expenses	2,231	2,443	2,743
Depreciation, amortization and asset write-offs	253	255	278
Restructuring charge	—	294	—
<i>Total Operating Expenses</i>	2,484	2,992	3,021
<i>Operating Income/(Loss)</i>	844	(13)	520
Interest expense	85	102	91
Interest and other income	(13)	(9)	(11)
<i>Interest Expense, Net</i>	72	93	80
Earnings/(loss) before income taxes	772	(106)	440
Income taxes	282	26	161
Net earnings/(loss)	\$ 490	\$ (132)	\$ 279

Note: Per share amounts omitted.

SOURCE: Toys "R" Us Inc., annual report, January 2000, 25.

plant closing costs, record-store closing costs, write-down of U.K. assets, the loss on sale of equity investments, and the preopening expenses.

There will usually be other nonrecurring items lurking in other statements or footnotes. Note the approximately \$12-million change in the Other expense (income) net balance for the year ending January 2, 1999, compared to the year ending January 3, 1998. Also, there must be something unusual about income taxes in the year ending January 3, 1998. The effective tax rate (\$5,586,000 divided by \$30,283,000) is only about 18%, well below the 35% statutory federal tax rate for large companies. By contrast, the effective tax rate (\$38,407,000 divided by \$57,092,000) for the year ending January 2, 1999, is about 67%.

Nonrecurring Items Located in Income from Continuing Operations

Whether a single- or multistep format is used, the composition of income from continuing operations is the same. It includes all items of revenue, gain, expense, and loss except those (1) identified with discontinued operations, (2) meeting the definition of extraordinary items, and (3) resulting from the cumulative effect of changes in accounting principles. Because income from continuing operations excludes only these three items, it follows that all other nonrecurring items of revenues or gains and expenses or losses are included in this key profit subtotal.

The Nature of Operating Income

Operating income is designed to reflect the revenues, gains, expenses, and losses that are related to the fundamental operating activities of the firm. Notice, however, that the Toys “R” Us operating loss for the year ending January 30, 1999, included two nonrecurring charges. These were the asset write-offs and a restructuring charge. While operating income or loss may include only operations-related items, some of these items may be nonrecurring. Hence, operating income is not the “sustainable” earnings measure called for in our opening quote from the AICPA Special Committee on Financial Reporting. Even at this early point in the operations section of the income statement, nonrecurring items have been introduced that will require adjustment in order to arrive at an earnings base “that provides a basis for estimating sustainable earnings.”¹¹ Also be aware that “operating income” in a multistep format is an earlier subtotal than “income from continuing operations.” Moreover, operating income is a pretax measure, whereas income from continuing operations is after tax. A more extensive sampling of items included in operating income is provided next.

Nonrecurring Items Included in Operating Income

Reviewing current annual reports reveals that corporations very often include nonrecurring revenues, gains, expenses, and losses in operating income. A sample of nonrecurring items included in the operating income section of multistep income statements is provided in Exhibit 2.6. As is typical, nonrecurring expenses and losses are more numerous than nonrecurring revenues and gains. This imbalance is due in part to GAAP, which require firms to recognize unrealized losses but not unrealized gains. Moreover, fundamental accounting conventions, such as the historical cost concept and conservatism, may also provide part of the explanation.

Many of the nonrecurring expense or loss items involve declines in the value of specific assets. Restructuring charges have been among the most common items in recent years in this section of the income statement. These charges involve asset write-downs and liability accruals that will be paid off in future years. Seldom is revenue or gain recorded as a result of writing up assets. Further, unlike the case of restructuring charges, the favorable future consequences of a management action would seldom support current accrual of revenue or gain.

There is substantial variety in the nonrecurring expenses and losses included in operating income. Many of the listed items appear closely linked to operations, and their classification seems appropriate. However, some appear to be at the fringes of normal operating items. Examples related to expenses and losses include the flood costs of Argosy Gaming, merger-related charges incurred by Brooktrout Technologies, the embezzlement loss of Osmonics, and the loss on the sale of Veeco Instruments’ leak detection business. Among the gains, the Fairchild and H.J. Heinz gains on selling off businesses would seem to be candidates for inclusion further down the income statement.

EXHIBIT 2.6 Nonrecurring items of revenue, gain, expense, and loss included in operating income.

Company	Nonrecurring Item
<i>Expenses and Losses</i>	
Air T Inc. (2000)	Start-up/merger expense
Akorn Inc. (1999)	Relocation costs
Amazon.Com Inc. (1999)	Stock-based compensation
Argosy Gaming Company (1995)	Flood costs
Avado Brands Inc. (1999)	Asset revaluation charges
Brooktrout Technologies Inc. (1998)	Merger related charges
Burlington Resources Inc. (1999)	Impairment of oil and gas properties
Cisco Systems Inc. (1999)	Charges for purchased R&D
Colonial Commercial Corporation (1999)	Costs of an abandoned acquisition
Dean Foods Company (1999)	Plant closure costs
Delta Air Lines Inc. (2000)	Asset write-downs and other special charges
Detection Systems Inc. (2000)	Shareholder class action litigation charge
Escalon Medical Corporation (2000)	Write-down of patents and goodwill
Gerber Scientific Inc. (2000)	Write-downs of inventory and receivables
Holly Corporation (2000)	Voluntary early retirement costs
JLG Industries Inc. (2000)	Restructuring charges
Osmonics Inc. (1993)	Embezzlement loss
Saucony Inc. (1999)	Write-down of impaired real estate
Silicon Valley Group Inc. (1999)	Inventory write-downs
Veeco Instruments Inc. (1999)	Loss on sale of leak detection business
Wegener Corporation (1999)	Write-down of capitalized software
<i>Revenues and Gains</i>	
Alberto-Culver Company (2000)	Gain on sale of European trademark
The Fairchild Corporation (2000)	Gains on the sale of subsidiaries
H.J. Heinz Company (1995)	Gain on sale of confectionery business
Lufkin Industries Inc. (1999)	LIFO-liquidation benefit
National Steel Corporation (1999)	Benefit from property-tax settlement
Praxair Inc. (1999)	Hedge gain in Brazil and income-hedge gain
Tyco International Ltd. (2000)	Reversal of restructuring accrual

SOURCES: Companies' annual reports. The year following each company name designates the annual report from which each example was drawn.

Comparing the items included in operating income to those excluded reveals a reasonable degree of flexibility and judgment in the classification of many of these items. In any event, operating income may not be a very reliable measure of ongoing operating performance given the wide range of nonrecurring items that are included in its determination.

Nonrecurring Items Excluded from Operating Income

Unlike the multistep format, the single-step income statement omits a subtotal representing operating income. The task of identifying core or operating income is therefore more difficult. Nonrecurring items of revenue or gain and

expense or loss are either presented as separate line items within the listing of revenues or gain and expense or loss, or are included in an “other income (expense)” line. A sampling of nonrecurring items found in the other-income-and-expense category of the multistep income statements of a number of companies is provided in Exhibit 2.7.

A comparison of the items in two exhibits reveals some potential for overlap in these two categories. The first, nonrecurring items in operating income, should be dominated by items closely linked to company operations. The nonrecurring items in the second category, below operating income, should fall outside the operations area of the firm. Notice that there is a litigation charge included in operating income (Exhibit 2.6, Detection Systems) as well as several excluded from operating income (Exhibit 2.7, Advanced Micro Devices, Cryomedical Sciences, and Trimark Holdings). Gains on the sale of investments are found far less frequently within operating income. Firms may avoid

EXHIBIT 2.7 Nonrecurring items of revenue or gain and expense or loss excluded from operating income.

Company	Nonrecurring Item
<i>Expenses or Losses</i>	
Advanced Micro Devices Inc. (1999)	Litigation settlement charge
Baltek Corporation (1997)	Foreign currency loss
Champion Enterprises (1995)	Environmental reserve
Cryomedical Sciences Inc. (1995)	Settlement of shareholder class action suit
Galey & Lord Inc. (1998)	Loss on foreign-currency hedges
Global Industries (1993)	Fire loss on marine vessel
Hollywood Casino Corporation (1992)	Write-off of deferred preacquisition costs
Imperial Holly Corporation (1994)	Workforce reduction charge
Trimark Holdings Inc. (1995)	Litigation settlement
<i>Revenues or Gains</i>	
Artistic Greetings Inc. (1995)	Unrealized gains on trading securities
Avado Brands Inc. (1999)	Gain on asset disposals
Colonial Commercial Corporation (1999)	Gain on land sale
Delta Air Lines Inc. (2000)	Gains from the sale of investments
The Fairchild Corporation (2000)	Gains on the sale of subsidiaries and affiliates
Freeport-McMoRan Inc. (1991)	Insurance settlement (tanker grounding)
Gerber Scientific Inc. (2000)	Litigation award
Imperial Sugar Company (1999)	Realized securities gains
Meredith Corporation (1994)	Sale of broadcast stations
National Steel Corporation (1999)	Gain on disposal of noncore assets
New England Business Service Inc. (1996)	Gain on sale of product line
Noble Drilling (1991)	Insurance on rig abandoned in Somalia
Pollo Tropical Inc. (1995)	Business-interruption insurance recovery
Raven Industries Inc. (2000)	Gain on sale of investment in affiliate
Saucony Inc. (1999)	Foreign currency gains

SOURCES: Companies' annual reports. The year following each company name designates the annual report from which each example was drawn.

classifying these nonrecurring gains within operating income to prevent shareholders' unrealistic expectations for earnings in subsequent periods. It is common to see foreign-currency gains and losses classified below operating income. This is somewhat difficult to rationalize because currency exposure is an integral part of operations when a firm does business with foreign customers and/or has foreign operations.

The operating income subtotal should measure the basic profitability of a firm's operations. It is far from a net earnings number because its location in the income statement is above a number of other nonoperating revenues, gains, expenses, and losses, as well as interest charges and income taxes. Clearly, the range and complexity of nonrecurring items create difficult judgment calls in implementing this concept of operating income. Management may use this flexibility to manage the operating income number. That is, the classification of items either inside or outside operating income could be influenced by the goal of maintaining stable growth in this key performance measure.

Some of the items in Exhibit 2.7 would seem to have been equally at home within the operating income section. An environmental reserve (Champion Enterprises) appears to be closely tied to operations, as are the workforce reduction charges, a common element of restructuring charges (Imperial Holly); the insurance settlement from the tanker grounding (Freeport-McMoRan); and business interruption insurance (Pollo Tropical).

Nonrecurring Items Located below Income from Continuing Operations

The region in the income statement below income from continuing operations has a standard organization and is the same for both the single- and multistep income statement. This format is outlined in Exhibit 2.8. The income statement of AK Steel Holding Corporation, shown in Exhibit 2.9, illustrates this format. Each of the special line items—that is, discontinued operations, extraordinary

EXHIBIT 2.8 Income statement format with special items.

Income from continuing operations	\$000
Discontinued operations	000
Extraordinary items	000
Cumulative effect of changes in accounting principles	<u>000</u>
Net income	000
Other comprehensive income	<u>000</u>
Comprehensive income	<u><u>\$000</u></u>

SOURCES: Key guidance is found in Accounting Principles Board Opinion No. 30, *Reporting the Results of Operations* (New York: AICPA, June 1973) and Statement of Financial Accounting Standards (SFAS), No. 130, *Reporting Comprehensive Income* (Norwalk, CT: FASB, June 1997).

EXHIBIT 2.9 Consolidated statements of income: AK Steel Holding Corp., years ended December 31 (in millions).

	1997	1998	1999
Net sales	\$4,176.6	\$4,029.7	\$4,284.8
Cost of products sold	3,363.3	3,226.5	3,419.8
Selling, general and administrative expense	288.0	278.0	309.8
Depreciation	141.0	161.2	210.7
Special charge	—	—	99.7
Total operating costs	<u>3,792.3</u>	<u>3,665.7</u>	<u>4,040.0</u>
Operating profit	384.3	364.0	244.8
Interest expense	<u>111.7</u>	<u>84.9</u>	<u>123.7</u>
Other income	48.4	30.3	20.8
Income from continuing operations before income taxes and minority interest	321.0	309.4	141.9
Income tax provision	127.5	105.5	63.9
Minority interest	<u>8.1</u>	<u>8.1</u>	<u>6.7</u>
Income from continuing operations	185.4	195.8	71.3
Discontinued operations	<u>1.6</u>	<u>—</u>	<u>7.5</u>
Income before extraordinary item and cumulative effect of a change in accounting	187.0	195.8	78.8
Extraordinary loss on retirement of debt, net of tax	1.9	—	13.4
Cumulative effect of change in accounting, net of tax	<u>—</u>	<u>133.9</u>	<u>—</u>
Net income	185.1	329.7	65.4
Other comprehensive income, net of tax:			
Foreign currency translation adjustment	(1.4)	0.3	(1.4)
Unrealized gains (losses) on securities:			
Unrealized holding gains (losses) arising during the period	2.1	(0.5)	(1.2)
Less: reclassification for gains included in net income	(0.2)	(1.0)	(1.9)
Minimum pension liability adjustment	<u>—</u>	<u>(2.6)</u>	<u>1.2</u>
Comprehensive income	<u>\$ 185.6</u>	<u>\$ 325.9</u>	<u>\$ 62.1</u>

Note: Note references as well as earnings-per-share data included in the AK Steel income statement were omitted from the above.

SOURCE: AK Steel Holdings Corp., annual report, December 1999, 20.

items, and changes in accounting principles—along with examples is discussed in the following sections. All of these items are presented in the income statement on an after-tax basis.

Discontinued Operations

The discontinued operations section is designed to enhance the interpretive value of the income statement by separating the results of continuing operations

from those that have been or are being discontinued. Only the discontinuance of operations that constitute a separate and complete segment of the business have normally been reported in this special section. The current segment-reporting standard, SFAS 131, *Disclosures about Segments of an Enterprise and Related Information*, identifies the following as characteristics of a segment:

1. It engages in business activities from which it may earn revenues and incur expenses (including revenues and expenses relating to transactions with other components of the same enterprise).
2. Its operating results are regularly reviewed by the enterprise's chief operating decision maker to allocate resources to the segment and assess its performance.
3. Discrete financial information is available.¹²

Some examples of operations that have been viewed as segments and therefore classified as “discontinued operations” are provided in Exhibit 2.10. Most of the discontinued operations that are disclosed in Exhibit 2.10 appear to satisfy the traditional test of being separate and distinct segments of the business. The retail furniture business of insurance company Atlantic American is a good example. The case of Textron is a somewhat closer call. Textron reports its operations in four segments: Aircraft, Automotive, Industrial, and Finance. The disposition of Avco Financial Services could be seen as a product line within the Finance segment. However, it may very well qualify as a segment under the newer guidance of SFAS No. 131, *Disclosures about Segments of an Enterprise and Related Information*, previously presented. The treatment of vegetables as a separate segment of the food processor Dean Foods also suggests that there are judgment calls in deciding whether a disposition is a distinct segment or simply a product line and thus only part of a segment.

Extraordinary Items

Income statement items are considered extraordinary if they are *both* (1) unusual and (2) infrequent in occurrence.¹³ Unusual items are not related to the typical activities or operations of the firm. Infrequency of occurrence simply implies that the item is not expected to recur in the foreseeable future.

In practice the joint requirement of “unusual and nonrecurring” results in very few items being reported as extraordinary. GAAPs identify two types of extraordinary transactions the gains or losses from which do not have to be both unusual and nonrecurring. These are (1) gains and losses from the extinguishment of debt¹⁴ and (2) gains or losses resulting from “troubled debt restructurings.”¹⁵ Included in the latter type are either the settlement of obligations or their continuation with a modification of terms.

A tabulation of extraordinary items, based on an annual survey of 600 companies conducted by the American Institute of CPAs, is provided in

EXHIBIT 2.10 Examples of discontinued operations.

Company	Principal Business	Discontinued Operation
American Standard Companies Inc. (1999)	Air conditioning, bathroom fixtures, and electronics	Medical systems
Atlantic American Corporation (1999)	Insurance	Retail furniture
Bestfoods Inc. (1999)	Food preparations	Corn refining
Dean Foods Inc. (1999)	Food processor	Vegetables segment
Decorator Industries Inc. (1999)	Interior furnishing products	Manufacture and sale for the retail market
The Fairchild Corporation (2000)	Aerospace fasteners and aerospace parts distribution	Fairchild technologies business
Gleason Corporation (1995)	Gear machinery and equipment	Metal stamping and fabricating
Maxco Inc. (1996)	Manufacturing, distribution, and real estate	Automotive refinishing products
A.O. Smith Corporation (1999)	Motors and generators	Storage tank and fiberglass pipe markets
Standard Register Company (1999)	Document management and print production	Promotional direct mail operation
Textron Inc. (1999)	Aircraft engines, automotive parts, and finance	Avco Financial Services
Watts Industries Inc. (1999)	Valves for plumbing, heating and water quality industries	Industrial oil and gas businesses

SOURCES: Companies' annual reports. The year following each company name designates the annual report from which each example was drawn.

Exhibit 2.11. This summary highlights the rarity of extraordinary items under current reporting requirements. Debt extinguishments represent the largest portion of the disclosed extraordinary items. This leaves only from two to five discretionary extraordinary items per year among the 600 companies surveyed.

The small number of gains and losses classified as extraordinary is consistent with their definition. However, this rarity adds to the challenge of locating all nonrecurring items as part of a thorough earnings analysis. Few nonrecurring items will qualify for the prominent disclosure that results from display in one of the special sections, such as for extraordinary items, of the income statement. A sample of discretionary extraordinary items—that is, items not treated as extraordinary by a specific standard—is provided in Exhibit 2.12.

Natural disasters and civil unrest are some of the more typical causes of extraordinary items. The extraordinary gain of American Building Maintenance may appear to fail the criterion of *unusual* since small earthquakes are

EXHIBIT 2.11 Frequency and nature of extraordinary items.

	1996	1997	1998	1999
Debt extinguishments	60	62	73	56
Other	<u>5</u>	<u>3</u>	<u>2</u>	<u>6</u>
Total extraordinary items	<u>65</u>	<u>65</u>	<u>75</u>	<u>62</u>
Companies presenting extraordinary items	63	64	74	61
Companies not presenting extraordinary items	<u>537</u>	<u>536</u>	<u>526</u>	<u>539</u>
Total companies	<u>600</u>	<u>600</u>	<u>600</u>	<u>600</u>

SOURCE: American Institute of Certified Public Accountants, *Accounting Trends and Techniques* (New York: AICPA, 1999), 392.

EXHIBIT 2.12 Discretionary extraordinary items.

Company	Item or Event
American Building Maintenance Inc. (1989)	Gain on an insurance settlement for damage to a building from a San Francisco earthquake
Avoca Inc. (1995)	Insurance proceeds from the destruction of a building by a fire
BLC Financial Services Inc. (1998)	Settlement of a lawsuit
KeyCorp Ohio (1999)	Gain on the sale of residential mortgage loan-servicing operations
Noble Drilling Corporation (1991)	Insurance settlement due to deprivation of use of logistics and drilling equipment abandoned in Somalia due to civil unrest
NACCO Industries Inc. (1995)	Gain on a downward revision of an obligation to the United Mine Workers of America Combined Benefit Fund
NS Group Inc. (1992)	Loss from an accidental melting of radioactive substance in the steel-making operation
Phillips Petroleum Company (1990)	Gain from a settlement with the government of Iran over the expropriation of Phillips' oil production interests
SunTrust Banks Inc. (1999)	Gain on the sale of the Company's consumer credit portfolio
Weyerhaeuser Company (1980)	Losses from Mount St. Helens eruption

SOURCES: Companies' annual reports. The year following each company name designates the annual report from which each example was drawn.

frequent in the Bay Area. However, the magnitude of this quake, at about 7.0 on the Richter scale, was probably enough for it to qualify as *both* unusual and nonrecurring. Earthquakes of such magnitude have not occurred since the San Francisco quake of 1906. The Mount St. Helens eruption (Weyerhaeuser) was certainly enormous on the scale of volcanic eruptions.

The discretionary character of the definition of *extraordinary items* combined with the growing complexity of company operations results in considerable diversity in the classification of items as extraordinary. For example, Sun Company (not displayed in Exhibit 2.12) had a gain from an expropriation settlement with Iran. Unlike Phillips Petroleum, however, Sun did not classify the gain as extraordinary. Neither Exxon nor Union Carbide (also not in Exhibit 2.12) classified as extraordinary their substantial losses from what could be seen as accidents related to their operating activities.¹⁶ The classifications as extraordinary of gains on the sale of servicing operations by KeyCorp and on a consumer credit portfolio by SunTrust are rather surprising. These two items would seem to fail the *unusual* part of the test for extraordinary items.

The task of locating all nonrecurring items of revenue or gain and expense or loss is aided only marginally by the presence of the extraordinary category in the income statement, because the extraordinary classification is employed so sparingly. Location of most nonrecurring items calls for careful review of other parts of the income statement, other statements, and notes to the financial statements.

Changes in Accounting Principles

The cumulative effects (catch-up adjustments) of changes in accounting principles are also reported below income from continuing operations (see Exhibit 2.8). Most changes in accounting principles result from the adoption of new standards issued by the Financial Accounting Standards Board (FASB).

The most common reporting treatment when a firm changes from one accepted accounting principle to another is to show the cumulative effect of the change on the results of prior years in the income statement for the year of the change. Less common is the retroactive restatement of the prior-year statements to the new accounting basis. Under this method, the effect of the change on the years prior to those presented in the annual report for the year of the change is treated as an adjustment to retained earnings of the earliest year presented.

As noted previously, in recent years accounting changes have been dominated by the requirement to adopt new generally accepted accounting principles (GAAPs). Discretionary changes in accounting principle are a distinct minority. Examples of discretionary changes would be a switch from accelerated to straight-line depreciation or from the LIFO to FIFO inventory method.

Information on accounting changes in both accounting principles and in estimates is provided in Exhibit 2.13. This information is drawn from an annual survey of the annual reports of 600 companies conducted by the American

EXHIBIT 2.13 Accounting changes.

Subject of the Change	Number of Companies			
	1996	1997	1998	1999
Software development costs (SOP 98-1)	—	1	37	66
Start-up costs (SOP 98-5)	—	2	29	39
Inventories	5	4	5	5
Revenue recognition (SAB 101)	—	—	—	5
Depreciable lives	3	3	4	4
Software revenue recognition	—	—	4	3
Derivatives and hedging activities	—	—	—	3
Market-value valuation of pension assets	—	—	—	3
Bankruptcy code reporting (SOP 90-7)	—	—	—	3
Recoverability of goodwill	—	—	—	2
Depreciation method	4	3	—	2
Business process reengineering (EITF 97-13)	—	28	10	2
Impairment of long-lived assets (SFAS 121)	134	39	3	—
Reporting entity	1	1	2	—
Other	28	57	13	10

SOURCE: American Institute of Certified Public Accountants, *Accounting Trends and Techniques* (New York: AICPA, 2000), 79.

Institute of Certified Public Accountants (AICPA). The distribution of adoption dates across several years, especially for SFAS 121, occurs because some firms adopt the new statement prior to its mandatory adoption date. In addition, the required adoption date for new standards is typically for years beginning after December 15 of the year specified. This means that firms whose fiscal year starts on January 1 are the first to be required to adopt the new standard. Other firms adopt throughout the following year.

Most recent changes in accounting principles have been reported on a cumulative-effect basis. The cumulative effect is reported net of tax in a separate section (see Exhibit 2.8) of the income statement. The cumulative effect is the impact of the change on the results of previous years. The impact of the change on the current year, that is, year of the change, is typically disclosed in a note describing the change and its impact. However, it is not disclosed separately on the face of the income statement. An example of the disclosure of both the cumulative effect of an accounting change and its effect on income from continuing operations is provided below:

Cumulative effect

Effective January 1, 1998, Armco changed its method of amortizing unrecognized net gains and losses related to its obligations for pensions and other postretirement benefits. In 1998, Armco recognized income of \$237.5 million, or \$2.20 per share of common stock, for the cumulative effect of this accounting change.

Effect on income from continuing operations for the year of change

Adoption of the new method increased 1998 income from continuing operations by approximately \$3.0 million or \$0.03 per share of common stock.¹⁷

In analyzing earnings, the effect of an accounting change on the results of previous years will be prominently displayed net of its tax effect on the face of the income statement. However, the effect on the current year's income from continuing operations appears only in the note describing the change. While not the case for the Armco example, the current-year effect of the change is often large and should be considered in interpreting the performance of the current year in relation to previous years.

Most of the entries in Exhibit 2.13 represent the mandatory adoption of new GAAP. Two statements of position (SOP), SOP 98-1 and 98-5, produced most of the accounting changes in 1998. Statements of position are issued by the AICPA and are considered part of the body of GAAP. The same is true for EITF 97-13. An EITF represents a consensus reached on a focused technical accounting and reporting issue by the Emerging Issues Task Force of FASB. The item listed as SAB 101 is a document issued by the SEC and will continue to cause changes in the timing of the recognition of income by many companies.¹⁸ The single listed FASB statement, SFAS 121, illustrates the multiyear adoption pattern that reflects early adopters in 1995, followed by mandatory adopters in subsequent years.

Some of the items listed in Exhibit 2.13 represent changes in accounting estimates as opposed to accounting principles. Changes in depreciation method are changes in accounting principle, whereas changes in depreciable lives are changes in estimate. The accounting treatments of the two different types of changes are quite different. Changes in accounting estimates are discussed next.

Changes in Estimates

Whereas changes in accounting principles are handled on either a cumulative-effect (catch-up) or retroactive restatement basis, changes in accounting estimates are handled on a prospective basis only. The impact of a change is included only in current or future periods; retroactive restatements are not permitted. For example, effective January 1, 1999, Southwest Airlines changed the useful lives of its 737-300 and 737-500 aircraft. This is considered a change in estimate. Southwest's change in estimate was disclosed in the following note:

Change in Accounting Estimate

Effective January 1, 1999, the Company revised the estimated useful lives of its 737-300 and 737-500 aircraft from 20 years to 23 years. This change was the result of the Company's assessment of the remaining useful lives of the aircraft based on the manufacturer's design lives, the Company's increased average aircraft stage (trip) length, and the Company's previous experience. The effect of this change was to reduce depreciation expense approximately \$25.7 million and increase net income \$.03 per diluted share for the year ended December 31, 1999.¹⁹

The \$25.7 million reduction in 1999 depreciation was not set out separately in Southwest's 1999 income statement, as would be the case if the depreciation reduction resulted from a change to straight-line from the accelerated method. Unlike the case of AK Steel (Exhibit 2.9), there is no cumulative-effect adjustment in the Southwest income statement.

Southwest reported pretax earnings of \$774 million in 1999. Pretax earnings in 1998 were \$705 million. On an as-reported basis, Southwest's pretax earnings grew by 10% in 1999. Without the \$25.7 million benefit from the increase in aircraft useful lives, however, the pretax earnings increase in 1999 would have been only 6%. That is, on a consistent basis Southwest's improvement in operating results is sharply lower than the as-reported results would suggest. Locating the effect of this accounting change and determining its contribution to Southwest's 1999 net income is essential in any effort to judge its 1999 financial performance.

Identifying nonrecurring items in the income statement as outlined above is a key first step in earnings analysis; many such items will be located at other places in the annual report. The discussion that follows considers other locations where additional nonrecurring items may be located.

NONRECURRING ITEMS IN THE STATEMENT OF CASH FLOWS

After the income statement, the operating activities section of the statement of cash flows is an excellent secondary source to use in locating nonrecurring items (step 2 in the search sequence in Exhibit 2.3). The diagnostic value of this section of the statement of cash flows results from two factors. First, gains and losses on the sale of investments and fixed assets must be removed from net income in arriving at cash flow from operating activities. Second, noncash items of revenue or gain and expense or loss must also be removed from net income. All cash inflows associated with the sale of investments and fixed assets must be classified in the investing activities section of the statement of cash flows. This classification requires removal of the gains or losses typically nonrecurring in nature from net income in arriving at cash flow from operating activities. Similarly, because many nonrecurring expenses or losses do not involve a current-period cash outflow, such items must be adjusted out of net income in arriving at cash flow from operating activities. Such adjustments, if not simply combined in a miscellaneous balance, often highlight nonrecurring items.

The partial statement of cash flows of Escalon Medical Corporation in Exhibit 2.14 illustrates the disclosure of nonrecurring items in the operating-activities section of the statement of cash flows. The nonrecurring items would appear to be (1) the write-down of intangible assets, (2) the net gain on sale of the Betadine product line, (3) the net gain on the sale of the Silicone Oil product

EXHIBIT 2.14 Nonrecurring items disclosed in the statement of cash flows: Escalon Medical Corporation, partial consolidated statements of cash flows, years ended June 30.

	1998	1999	2000
<i>Cash Flows from Operating Activities</i>			
Net income (loss)	\$ 171,472	\$1,193,787	\$ (862,652)
Adjustments to reconcile net income (loss) to net cash provided from (used in) operating activities:			
Depreciation and amortization	331,987	363,687	666,770
Equity in net loss of joint venture	—	—	33,382
Income from license of intellectual laser property	(75,000)	—	—
Write-down of intangible assets	—	24,805	—
Net gain on sale of Betadine product line	—	(879,159)	—
Net gain on sale of Silicone Oil product line	—	—	(1,863,915)
Write-down of patents and goodwill	—	—	417,849
Change in operating assets and liabilities:			
Accounts receivable	(353,113)	(48,451)	586,424
Inventory	115,740	(410,476)	162,862
Other current and long-term assets	(16,862)	(116,491)	(164,960)
Accounts payable and accrued expenses	<u>(360,396)</u>	<u>519,764</u>	<u>(416,506)</u>
Net cash provided from (used in) operating activities	<u>\$ (186,172)</u>	<u>\$647,466</u>	<u>\$ (1,440,746)</u>

SOURCE: Escalon Medical Corporation, annual report, June 2000, F-6.

line, and (4) the write-down of patent costs and goodwill. The Escalon income statement also disclosed, on separate lines, each of the nonrecurring items revealed in the operating activities section, with the exception of the intangible assets write-down.

The asset write-downs, items (1) and (4) above, are added back to net income or loss because they are noncash. The gains on the product-line sales are deducted from net income or loss because all cash from such transactions, including the portion represented by the gain, must be classified in the investing activities section of the cash flow statement. As the gains are part of net income or loss, a failure to remove them would both overstate cash flows from operating activities and understate investing cash inflows.

Examples of nonrecurring items disclosed in the operating activities section of a number of different companies are presented in Exhibit 2.15. Frequently, nonrecurring items appear in both the income statement and operating activities section of the statement of cash flows. However, some nonrecurring items are disclosed in the statement of cash flows but not the income statement. Exhibit 2.15 provides examples of both types of disclosure.

