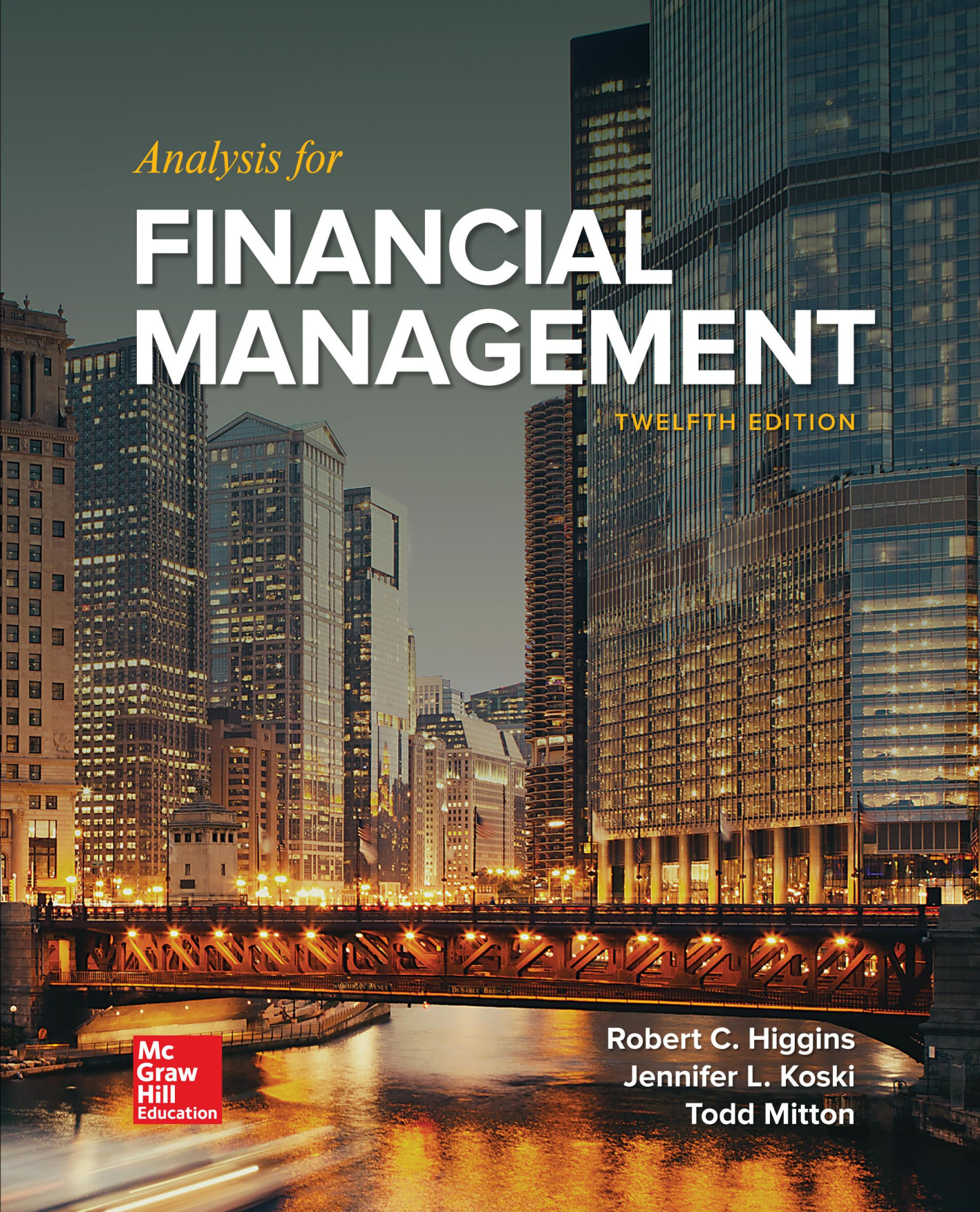
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Mc Graw Hill Education
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Analysis for Financial Management

Twelfth Edition

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ANALYSIS FOR FINANCIAL MANAGEMENT, TWELFTH EDITION

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In memory of our sons
STEVEN HIGGINS
1970–2007
ALEXANDER MITTON
1997–2014

Brief Contents

Contents

Preface

Like its predecessors, the twelfth edition of *Analysis for Financial Management* is for nonfinancial executives and business students interested in the practice of financial management. It introduces standard techniques and recent advances in a practical, intuitive way. The book assumes no prior background beyond a rudimentary and perhaps rusty familiarity with financial statements—although a healthy curiosity about what makes business tick is also useful. Emphasis throughout is on the managerial implications of financial analysis.

Analysis for Financial Management should prove valuable to individuals interested in sharpening their managerial skills and to executive program participants. The book has also found a home in university classrooms as the sole text in Executive MBA and applied finance courses, as a companion text in case-oriented courses, and as a supplementary reading in more theoretical courses.

Analysis for Financial Management is our attempt to translate into another medium the enjoyment and stimulation we have received over many years working with executives and college students. This experience has convinced us that financial techniques and concepts need not be abstract or obtuse; that significant advances in the field, such as agency theory, market signaling, market efficiency, capital asset pricing, and real options analysis, are important to practitioners; and that finance has much to say about the broader aspects of company management. We are also convinced that any activity in which so much money changes hands so quickly cannot fail to be interesting.

Part One looks at the management of existing resources, including the use of financial statements and ratio analysis to assess a company's financial health, its strengths, weaknesses, recent performance, and future prospects. Emphasis throughout is on the ties between a company's operating activities and its financial performance. A recurring theme is that a business must be viewed as an integrated whole and that effective financial management is possible only within the context of a company's broader operating characteristics and strategies.

The rest of the book deals with the acquisition and management of new resources. Part Two examines financial forecasting and planning, with particular emphasis on managing growth and decline. Part Three considers the financing of company operations, including a review of the principal security types, the markets in which they trade, and the proper choice of security type by the issuing company. The latter requires a close look at financial leverage and its effects on the firm and its shareholders.

Part Four addresses the use of discounted cash flow techniques, such as the net present value and the internal rate of return, to evaluate investment opportunities. It also deals with the difficult task of incorporating risk into

investment appraisal. The book concludes with an examination of business valuation and company restructuring within the context of the ongoing debate over the proper roles of shareholders, boards of directors, and incumbent managers in governing America's public corporations.

An extensive glossary of financial terms and suggested answers to odd-numbered, end-of-chapter problems follow the last chapter.

Changes in the Twelfth Edition

Readers familiar with earlier editions of *Analysis for Financial Management* will notice the book now has three authors with Jennifer Koski and Todd Mitton joining long-time author Robert (Rocky) Higgins. We have found this partnership stimulating, and trust you will agree that three heads are, indeed, better than one.

Other noteworthy changes and refinements in the twelfth edition include:

- A complete revision of the appendix to Chapter 5 on financial derivatives and their use in managing risk.
- Expanded coverage in Chapter 2 of "adjusted earnings" in financial reporting.
- Inclusion of operating and cash conversion cycles as part of evaluating financial performance, also in Chapter 2.
- Use of Microsoft's recent $26.2 billion acquisition of LinkedIn Corporation in Chapter 9 to illustrate the market for corporate control.
- Expanded discussion of share repurchases and their role in managing growth appearing in Chapter 4.
- A new introduction to discounted cash flow analysis at the start of Chapter 7, emphasizing the topic's pivotal role in the creation of shareholder value. (If you are inclined to begin study of corporate finance with discounted cash flow analysis and value creation, we suggest you consider starting *Analysis for Financial Management* with Chapter 7, followed by 5, 6, 8, and 9.)
- An updated discussion of crowdfunding and its probable future in Chapter 5.
- Use of Hasbro, Inc., a leading toy and game company, as an extended example throughout the book.

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A word of caution: *Analysis for Financial Management* emphasizes the application and interpretation of analytic techniques in decision making. These techniques have proved useful for putting financial problems into perspective and for helping managers anticipate the consequences of their actions. However, techniques can never substitute for thought. Even with the best technique, it is still necessary to define and prioritize issues, to modify analysis to fit specific circumstances, to strike the proper balance between quantitative analysis and more qualitative considerations, and to evaluate alternatives insightfully and creatively. Mastery of technique is only the necessary first step toward effective management.

We are indebted to Andy Halula of Standard & Poor's for providing timely updates to Research Insight. The ability to access current Compustat data continues to be a great help in providing timely examples of current practice. We also owe a large thank you to the following people for their insightful reviews of the twelfth edition and their constructive advice. They did an excellent job. Any remaining shortcomings are ours, not theirs.

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We appreciate the exceptional direction provided by Noelle Bathurst, Chuck Synovec, Trina Maurer, and Heather Ervolino of McGraw-Hill on the development, design, and editing of the book. David Beim, Dave Dubofsky, Jack McDonald, George Parker, Megan Partch, and Alan Shapiro have our continuing gratitude for their insightful help and support throughout the book's evolution. Finally, we want to express our appreciation to students and colleagues at the University of Washington, Brigham Young University, Stanford University, IMD, The Darden School, The Pacific Coast Banking School, The Koblenz Graduate School of Management, The Gordon Institute of Business Science, Boeing, and Microsoft, among others, for stimulating our continuing interest in the practice and teaching of financial management.

We envy you learning this material for the first time. It's a stimulating intellectual adventure.

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PART ONE

Assessing the Financial Health of the Firm

CHAPTER ONE

Interpreting Financial Statements

Financial statements are like fine perfume; to be sniffed but not swallowed.

Abraham Brilloff

Accounting is the scorecard of business. It translates a company's diverse activities into a set of objective numbers that provide information about the firm's performance, problems, and prospects. Finance involves the interpretation of these accounting numbers for assessing performance and planning future actions.

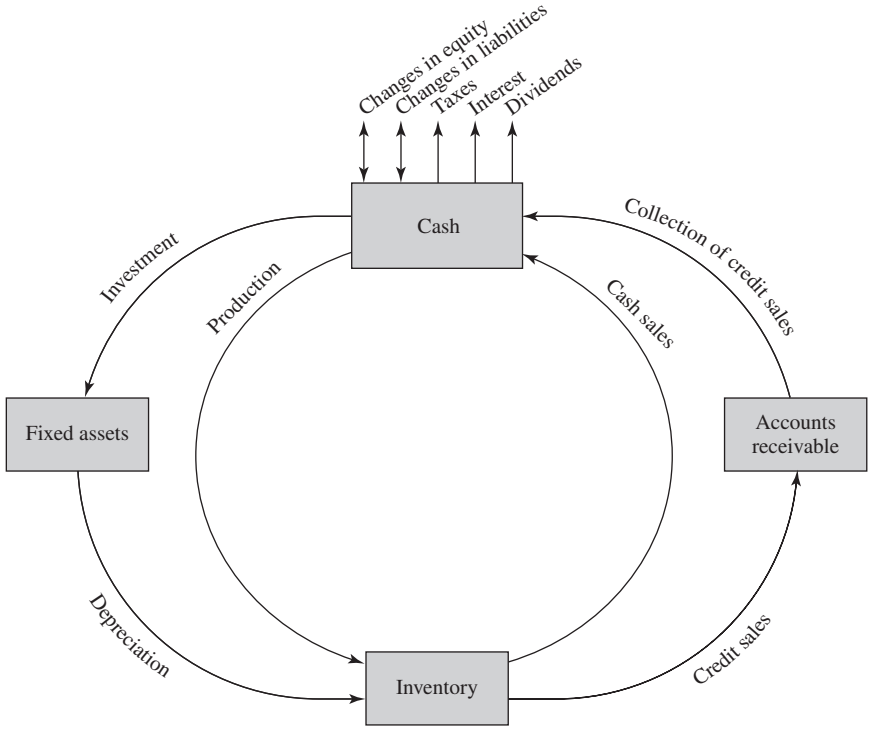
The skills of financial analysis are important to a wide range of people, including investors, creditors, and regulators. But nowhere are they more important than within the company. Regardless of functional specialty or company size, managers who possess these skills are able to diagnose their firm's ills, prescribe useful remedies, and anticipate the financial consequences of their actions. Like a ballplayer who cannot keep score, an operating manager who does not fully understand accounting and finance works under an unnecessary handicap.

This and the following chapter look at the use of accounting information to assess financial health. We begin with an overview of the accounting principles governing financial statements and a discussion of one of the most abused and confusing notions in finance: cash flow. Two recurring themes will be that defining and measuring profits is more challenging than one might expect, and that profitability alone does not guarantee success, or even survival. In Chapter 2, we look at measures of financial performance and ratio analysis.

The Cash Flow Cycle

Finance can seem arcane and complex to the uninitiated. However, a comparatively few basic principles should guide your thinking. One is that *a company's finances and operations are integrally connected.* A company's

FIGURE 1.1 The Cash Flow–Production Cycle



activities, method of operation, and competitive strategy all fundamentally shape the firm's financial structure. The reverse is also true: Decisions that appear to be primarily financial in nature can significantly affect company operations. For example, the way a company finances its assets can affect the nature of the investments it is able to undertake in future years.

The cash flow–production cycle shown in Figure 1.1 illustrates the close interplay between company operations and finances. For simplicity, suppose the company shown is a new one that has raised money from owners and creditors, has purchased productive assets, and is now ready to begin operations. To do so, the company uses cash to purchase raw materials and hire workers; with these inputs, it makes the product and stores it temporarily in inventory. Thus, what began as cash is now physical inventory. When the company sells an item, the physical inventory changes back into cash. If the sale is for cash, this occurs immediately; otherwise, cash is not realized until some later time when the account receivable is collected. This simple movement of cash to inventory, to accounts receivable, and back to cash is the firm's *operating,* or *working capital, cycle.*

Another ongoing activity represented in Figure 1.1 is investment. Over a period of time, the company's fixed assets are consumed, or worn out, in the creation of products. It is as though every item passing through the business takes with it a small portion of the value of fixed assets. The accountant recognizes this process by continually reducing the accounting value of fixed assets and increasing the value of merchandise flowing into inventory by an amount known as *depreciation.* To maintain productive capacity and to finance additional growth, the company must invest part of its newly received cash in new fixed assets. The object of this whole exercise, of course, is to ensure that the cash returning from the working capital cycle and the investment cycle exceeds the amount that started the journey.

We could complicate Figure 1.1 further by including accounts payable and expanding on the use of debt and equity to generate cash, but the figure already demonstrates two basic principles. First, *financial statements are an important window on reality.* A company's operating policies, production techniques, and inventory and credit-control systems fundamentally determine the firm's financial profile. If, for example, a company requires payment on credit sales to be more prompt, its financial statements will reveal a reduced investment in accounts receivable and possibly a change in its revenues and profits. This linkage between a company's operations and its finances is our rationale for studying financial statements. We seek to understand company operations and predict the financial consequences of changing them.

The second principle illustrated in Figure 1.1 is that *profits do not equal cash flow.* Cash—and the timely conversion of cash into inventories, accounts receivable, and back into cash—is the lifeblood of any company. If this cash flow is severed or significantly interrupted, insolvency can occur. Yet the fact that a company is profitable is no assurance that its cash flow will be sufficient to maintain solvency. To illustrate, suppose a company loses control of its accounts receivable by allowing customers more and more time to pay, or suppose the company consistently makes more merchandise than it sells. Then, even though the company is selling merchandise at a profit in the eyes of an accountant, its sales may not be generating sufficient cash soon enough to replenish the cash outflows required for production and investment. When a company has insufficient cash to pay its maturing obligations, it is insolvent. As another example, suppose the company is managing its inventory and receivables carefully, but rapid sales growth is necessitating an ever-larger investment in these assets. Then, even though the company is profitable, it may have too little cash to meet its obligations. The company will literally be "growing broke." These brief examples illustrate why a manager must be concerned at least as much with cash flows as with profits.

To explore these themes in more detail and to sharpen your skills in using accounting information to assess performance, we need to review the basics of financial statements. If this is your first look at financial accounting, buckle up because we will be moving quickly. If the pace is too quick, take a look at one of the accounting texts recommended at the end of the chapter.

The Balance Sheet

The most important source of information for evaluating the financial health of a company is its financial statements, consisting principally of a balance sheet, an income statement, and a cash flow statement. Although these statements can appear complex at times, they all rest on a very simple foundation. To understand this foundation and to see the ties among the three statements, let us look briefly at each.

A *balance sheet* is a financial snapshot, taken at a point in time, of all the assets the company owns and all the claims against those assets. The basic relationship, and indeed the foundation for all of accounting, is

$$\text{Assets} = \text{Liabilities} + \text{Shareholders' equity}$$

It is as if a herd (flock? column?) of accountants runs through the business on the appointed day, making a list of everything the company owns, and assigning each item a value. After tabulating the firm's assets, the accountants list all outstanding company liabilities, where a liability is simply an obligation to deliver something of value in the future—or more colloquially, some form of an "IOU." Having thus totaled up what the company *owns* and what it *owes,* the accountants call the difference between the two *shareholders' equity.* Shareholders' equity is the accountant's estimate of the value of the shareholders' investment in the firm, just as the value of a homeowner's equity is the value of the home (the asset), less the mortgage outstanding against it (the liability). Shareholders' equity is also known variously as *owners' equity, stockholders' equity, net worth,* or simply *equity.*

It is important to realize that the basic accounting equation holds for individual transactions, as well as for the firm as a whole. When a firm pays $1 million in wages, cash declines $1 million and shareholders' equity falls by the same amount. Similarly, when a company borrows $100,000, cash rises $100,000, as does a liability named something like *loans outstanding.* And when a company receives a $10,000 payment from a customer, cash rises while another asset, accounts receivable, falls by the same figure. In each instance, the double-entry nature of accounting guarantees that the basic accounting equation holds for each transaction, and when summed across all transactions, it holds for the company as a whole.

To see how the repeated application of this single formula underlies the creation of company financial statements, consider Worldwide Sports (WWS), a newly founded retailer of value-priced sporting goods. In January 2017, the founder invested $150,000 of his personal savings and added another $100,000 borrowed from relatives to start the business. After buying furniture and display fixtures for $60,000 and merchandise for $80,000, WWS was ready to open its doors.

The following six transactions summarize WWS's activities over the course of its first year.

- Sold $900,000 of sports equipment, receiving $875,000 in cash, with $25,000 still to be paid.
- Paid $190,000 in wages, including the owner's salary.
- Purchased $380,000 of merchandise at wholesale, with $20,000 still owed to suppliers, and $30,000 worth of product still in WWS's inventory at year-end.
- Spent $210,000 on other expenses, such as utilities and rent.
- Depreciated furniture and fixtures by $15,000.
- Paid $10,000 interest on WWS's loan from relatives and another $40,000 in income taxes to the government.

Table 1.1 shows how an accountant would record these transactions. WWS's beginning balance, the first line in the table, shows cash of $250,000, a loan of $100,000, and equity of $150,000. But these numbers change quickly as the company buys fixtures and an initial inventory of merchandise. And they change further as each of the listed transactions occurs.

TABLE 1.1 Worldwide Sports Financial Transactions 2017 ($ thousands)

	Assets				=	Liabilities		+ Equity
	Cash	Accounts Receivable	Inventory	Fixed Assets	=	Accounts Payable	Loan from Relatives	Owners' Equity
Beginning Balance 1/1/17	$ 250				=		$100	$ 150
Initial purchases	(140)		80	60	=			
Sales	875	25			=			900
Wages	(190)				=			(190)
Merchandise purchases	(360)		30		=	20		(350)
Other expenses	(210)				=			(210)
Depreciation				(15)	=			(15)
Interest payment	(10)				=			(10)
Income tax payment	(40)				=			(40)
Ending Balance 12/31/17	$ 175	$25	$110	$45	=	$20	$100	$ 235

Abstracting from the accounting details, there are two important things to note here. First, the basic accounting equation holds for each transaction. For every line in the table, assets equal liabilities plus owners' equity. Second, WWS's year-end balance sheet across the bottom of the table is just its beginning balance sheet plus the cumulative effect of the individual transactions. For example, ending cash on December 31, 2017 is the beginning cash of $250,000 plus or minus the cash involved in each transaction. Incidentally, WWS's first year appears to have been a decent one: Owner's equity is up $85,000 over the year, on top of whatever the owner paid himself in salary.

To further convince you that the bottom row of Table 1.1 really is a balance sheet, the following table presents the same information in a more conventional format.

Worldwide Sports Balance Sheet, December 31, 2017 ($ thousands)

Cash	$175	Accounts payable	$ 20
Accounts receivable	25	**Total current liabilities**	20
Inventory	110	Loan from relatives	100
Total current assets	310	Equity	235
Fixed assets	45	**Total liabilities and**	
Total assets	$355	**Shareholders' equity**	$355

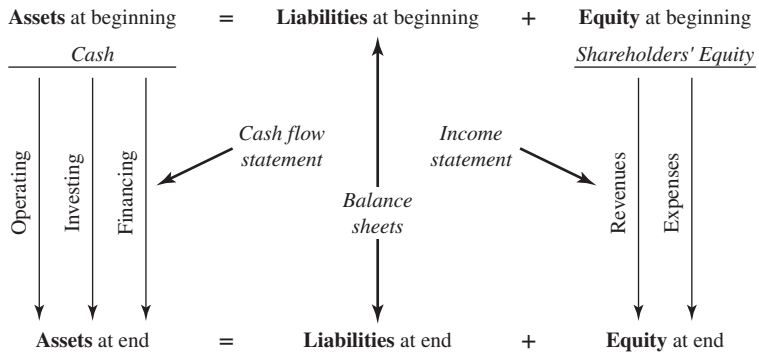
If a balance sheet is a snapshot in time, the income statement and the cash flow statement are videos, highlighting changes in two especially important balance sheet accounts over time. Business owners are naturally interested in how company operations have affected the value of their investment. The income statement addresses this question by partitioning the recorded changes in owners' equity into revenues and expenses, where revenues increase owners' equity and expenses reduce it. The difference between revenues and expenses is earnings, or net income.

Looking at the right-most column in Table 1.1, WWS's 2017 income statement looks like this. Note that the $85,000 net income appearing at the bottom of the statement equals the change in shareholders' equity over the year.

Worldwide Sports Income Statement, 2017 ($ thousands)

Sales	$900
Wages	190
Merchandise purchases	350
Depreciation	15
Gross profit	$345
Other expenses	210
Interest expense	10
Income before tax	$125
Income taxes	40
Net income	$ 85

FIGURE 1.2 **Ties among Financial Statements**



The focus of the cash flow statement is solvency, having enough cash in the bank to pay bills as they come due. The cash flow statement provides a detailed look at changes in the company's cash balance over time. As an organizing principle, the statement segregates changes in cash into three broad categories: cash provided, or consumed, by operating activities, by investing activities, and by financing activities. Figure 1.2 is a simple schematic diagram showing the close conceptual ties among the three principal financial statements.

See **hasbro.com**. Follow Corporate > Investors > Financials & Filings for financial statements.

To illustrate the techniques and concepts presented throughout the book, I will refer whenever possible to Hasbro, Inc. Hasbro is a leading toy and game company whose products and brands, such as Monopoly, Nerf, and Play-Doh, bring back vivid memories of childhood. Hasbro also develops toys and games for partners, including for the Marvel and Star Wars franchises. In 2016, it began a licensing agreement with Walt Disney Company to market Disney Princess and Frozen dolls. Hasbro sells toys and games in over 120 countries and has offices in 35 countries. The company focus is on having fun, or as they describe it, "Creating the World's Best Play Experience."

Headquartered in Pawtucket, Rhode Island, with annual sales of $5 billion, Hasbro trades on the NASDAQ stock market. The firm was founded in 1923 by Henry and Hillel Hassenfeld as Hassenfeld Brothers, later shortened to Hasbro Inc.. The company started off selling textile remnants and school supplies, and in the 1940s expanded its product line to include its first toys. During the next couple of decades, Hasbro introduced some iconic brands such as Mr. Potato Head and G.I. Joe. In the 1990s, Hasbro successfully adapted its product line to embrace digital games and videos. By 2016, 46 percent of Hasbro's sales came from its own brands. Partner Brands contributed 28 percent of sales, with the remainder coming from the Hasbro Gaming and Emerging Brands product lines.

TABLE 1.2 Hasbro Inc. Balance Sheets ($ millions)*

Source: Data from Hasbro 2016 annual report and Compustat

	December 31		Change in Account
	2015	2016	
Assets			
Cash and cash equivalents	$ 977	$1,282	$ 306
Accounts receivable, less reserve for possible losses	1,218	1,320	102
Inventories	384	388	3
Other current assets	287	238	(49)
Total current assets	2,866	3,228	
Gross property, plant, and equipment	601	651	50
Less accumulated depreciation and amortization	364	384	20
Net property, plant, and equipment	238	267	30
Goodwill and other intangible assets, net	874	817	(57)
Other assets	744	780	36
Total assets	$4,721	$5,091	
Liabilities and Shareholders' Equity			
Debt due in one year	165	522	358
Accounts payable	241	320	79
Accrued liabilities	659	776	117
Total current liabilities	1,065	1,618	
Long-term debt	1,547	1,199	(348)
Other long-term liabilities	445	411	(34)
Total liabilities	3,057	3,228	
Common stock	105	105	
Additional paid-in capital	894	985	
Retained earnings	3,706	3,954	
Treasury stock	(3,041)	(3,182)	
Total shareholders' equity	1,664	1,863	199
Total liabilities and shareholders' equity	$4,721	$5,091	

*Totals may not add due to rounding.

Tables 1.2 and 1.3 present Hasbro's balance sheets and income statements for 2015 and 2016. If the precise meaning of every asset and liability category in Table 1.2 is not immediately apparent, be patient. We will discuss many of them in the following text. In addition, all of the accounting terms used appear in the glossary at the end of the book.

Hasbro Inc.'s balance sheet equation for 2016 is

$$\text{Assets} = \text{Liabilities} + \text{Shareholders' equity}$$
$$\$5{,}091 \text{ million} = \$3{,}228 \text{ million} + \$1{,}863 \text{ million}$$

TABLE 1.3 **Hasbro Inc. Income Statements ($ millions)***

Source: Data from Hasbro 2016 annual report and Compustat

	January 1 to December 31	
	2015	**2016**
Net sales	$4,448	$5,020
Cost of goods sold	1,987	2,231
Gross profit	2,460	2,789
Selling, general, and administrative expenses	1,616	1,813
Depreciation and amortization	155	154
Total operating expenses	1,772	1,968
Operating income	689	821
Interest expense	97	97
Other nonoperating expense (income)	(17)	14
Total nonoperating expenses	80	111
Income before income taxes	609	710
Provision for income taxes	157	159
Net income	$ 452	$ 551

*Totals may not add due to rounding.

Current Assets and Liabilities

By convention, U.S. accountants list assets and liabilities on the balance sheet in order of decreasing liquidity, where liquidity refers to the speed with which an item can be converted to cash. Thus, cash, marketable securities, and accounts receivable appear at the top, while land, plant, and equipment are toward the bottom. Similarly on the liabilities side, short-term loans and accounts payable are toward the top, while shareholders' equity is at the bottom.

Accountants also arbitrarily define any asset or liability that is expected to turn into cash within one year as *current* and all others assets and liabilities as *long term.* Inventory is a current asset because there is reason to believe it will be sold and will generate cash within one year. Accounts payable are short-term liabilities because they must be paid within one year. Note that over half of Hasbro's assets are current, a fact we will say more about in the next chapter.

A Word to the Unwary

Nothing puts a damper on a good financial discussion (if such exists) faster than the suggestion that if a company is short of cash, it can always spend some of its shareholders' equity. Equity is on the liabilities side of the balance sheet, not the asset side. It represents owners' claims against existing assets. In other words, that money has already been spent.

Shareholders' Equity

A common source of confusion is the large number of accounts appearing in the shareholders' equity portion of the balance sheet. Hasbro has four, beginning with common stock and ending with treasury stock (see Table 1.2). Unless forced to do otherwise, my advice is to forget these distinctions. They keep accountants and attorneys employed, but seldom make much practical difference. As a first cut, just add up everything that is not an IOU and call it shareholders' equity.

The Income Statement

Looking at Hasbro's operating performance in 2016, the basic income statement relation appearing in Table 1.3 is

Revenues	–	Expenses							=	Net income
Net sales	–	Cost of goods sold	–	Operating expenses	–	Nonoperating expenses	–	Taxes	=	Net income
$5,020	–	$2,231	–	$1,968	–	$111	–	$159	=	$551

Net income records the extent to which net sales generated during the accounting period exceeded expenses incurred in producing the sales. For variety, net income is also commonly referred to as *earnings* or *profits,* frequently with the word *net* stuck in front of them; net sales are often called *revenues* or *net revenues;* and cost of goods sold is labeled *cost of sales.* I have never found a meaningful distinction between these terms. Why so many words to say the same thing? My personal belief is that accountants are so rule-bound in their calculations of the various amounts that their creativity runs a bit amok when it comes to naming them.

Income statements are commonly divided into operating and nonoperating segments. As the names imply, the operating segment reports the results of the company's major, ongoing activities, while the nonoperating segment summarizes all ancillary activities. In 2016, Hasbro reported operating income of $821 million and nonoperating expenses of $111 million, consisting largely of interest expense.

Measuring Earnings

This is not the place for a detailed discussion of accounting. But because earnings, or lack of same, are a critical indicator of financial health, several technical details of earnings measurement deserve mention.

Accrual Accounting

The measurement of accounting earnings involves two steps: (1) identifying revenues for the period and (2) matching the corresponding costs to revenues.

Looking at the first step, it is important to recognize that revenue is not the same as cash received. According to the *accrual principle* (a cruel principle?) of accounting, revenue is recognized as soon as "the effort required to generate the sale is substantially complete and there is a reasonable certainty that payment will be received." The accountant sees the timing of the actual cash receipts as a mere technicality. For credit sales, the accrual principle means that revenue is recognized at the time of sale, not when the customer pays. This can result in a significant time lag between the generation of revenue and the receipt of cash. Looking at Hasbro, we see that revenue in 2016 was $5,020 million, but accounts receivable increased $102 million. We conclude that cash received from sales during 2016 was only $4,918 million ($5,020 – $102 million). The other $102 million still awaits collection.

Depreciation

Fixed assets and their associated depreciation present the accountant with a particularly challenging problem in matching. Suppose that in 2018, a company constructs, for $50 million, a new facility that has an expected productive life of 10 years. If the accountant assigns the entire cost of the facility to expenses in 2018, some weird results follow. Income in 2018 will appear depressed due to the $50 million expense, while income in the following nine years will look that much better as the new facility contributes to revenue but not to expenses. Thus, charging the full cost of a long-term asset to one year clearly distorts reported income.

The preferred approach is to spread the cost of the facility over its expected useful life in the form of depreciation. Because the only cash outlay associated with the facility occurs in 2018, the annual depreciation listed as a cost on the company's income statement is not a cash outflow. It is a *noncash charge* used to match the 2018 expenditure with resulting revenue. Said differently, depreciation is the allocation of past expenditures to future time periods to match revenues and expenses. A glance at Hasbro's income statement reveals that, in 2016, the company included a $154 million noncash charge for depreciation and amortization among their operating expenses. Further along in the text, we will see that during the same year, the company spent $155 million acquiring new property, plant, and equipment.

To determine the amount of depreciation to take on a particular asset, three estimates are required: the asset's useful life, its salvage value, and the method of allocation to be employed. These estimates should be based on economic and engineering information, experience, and any other objective data about the asset's likely performance. Broadly speaking, there are two methods of allocating an asset's cost over its useful life. Under the *straight-line* method, the accountant depreciates the asset by a uniform amount each year. If an asset costs $50 million, has an expected useful life of 10 years, and has an estimated salvage value of $10 million, straight-line depreciation will be $4 million per year ([$50 million – $10 million]/10).

The second method of cost allocation is really a family of methods known as *accelerated depreciation.* Each technique charges more depreciation in the early years of the asset's life and correspondingly less in later years. Accelerated depreciation does not enable a company to take more depreciation in total; rather, it alters the timing of the recognition. While the specifics of the various accelerated techniques need not detain us here, you should recognize that the life expectancy, the salvage value, and the allocation method a company uses can fundamentally affect reported earnings. In general, if a company is conservative and depreciates its assets rapidly, it will tend to understate current earnings, and vice versa.

Taxes

A second noteworthy feature of depreciation accounting involves taxes. Most U.S. companies, except very small ones, keep at least two sets of financial records: one for managing the company and reporting to shareholders, and another for determining the firm's tax bill. The objective of the first set is, or should be, to accurately portray the company's financial performance. The objective of the second set is much simpler: to minimize taxes. Forget objectivity and minimize taxes. These differing objectives mean the accounting principles used to construct the two sets of books differ substantially. Depreciation accounting is a case in point. Regardless of the method used to report to shareholders, company tax books will minimize current taxes by employing the most rapid method of depreciation over the shortest useful life the tax authorities allow.

This dual reporting means that actual cash payments to tax authorities usually differ from the provision for income taxes appearing on a company's income statement, sometimes trailing the provision and other times exceeding it. When this happens, the company will report the difference somewhere on its balance sheet. If the company pays less than it owes, it will have a liability with a name like "taxes payable," representing the money it must pay tax authorities in future years. In the meantime, this money can be used to finance the business. Tax deferral techniques create the equivalent of interest-free loans from the government. In Japan and other countries that do not allow the use of separate accounting techniques for tax and reporting purposes, these complications never arise. Hasbro's balance sheet doesn't show a line item for over- or underpaying taxes. Either this number is too small to warrant its own line, or Hasbro is paying the exact amount it owes according to its income statement.

Research and Marketing

Now that you understand how accountants use depreciation to spread the cost of long-lived assets over their useful lives to better match revenues and costs, you may think you also understand how they treat research and marketing expenses. Because research and development (R&D) and marketing outlays promise benefits over a number of future periods, it is only logical that an accountant would

show these expenditures as assets when they are incurred and then spread the costs over the assets' expected useful lives in the form of a noncash charge such as depreciation. This may be impeccable logic, but it isn't what accountants do, at least not in the United States. Because the magnitude and duration of the prospective payoffs from R&D and marketing expenditures are difficult to estimate, accountants typically duck the problem by forcing companies to record the entire expenditure as an operating cost in the year incurred. Thus, although a company's research outlays in a given year may have produced technical breakthroughs that will benefit the firm for decades to come, all of the costs must be shown on the income statement in the year incurred. The requirement that companies expense all research and marketing expenditures when incurred commonly understates the profitability of high-tech and high-marketing companies and complicates comparison of American companies with those in other nations that treat such expenditures more liberally.

Defining Earnings

Creditors and investors look to company earnings for help in answering two fundamental questions: How did the company do last period, and how might it do in the future? To answer the first question, it is important to use a broad-based measure of income that includes everything affecting the company's performance over the accounting period. However, to answer the second question, we want a narrower income measure that abstracts from all unusual, nonrecurring events to focus strictly on the company's steady state, or ongoing, performance.

The accounting profession and the Securities and Exchange Commission obligingly provide two such official measures, known as net income and operating income, and require companies to report them on their financial statements.

Net income, or net profit, is the proverbial "bottom line," defined as total revenue less total expenses.

Operating income is profit realized from day-to-day operations excluding taxes, interest income and expense, and what are known as extraordinary items. An extraordinary item is one that is both unusual in nature and infrequent in occurrence.

Managers and investment professionals often consider several other, unofficial measures of earnings. Here are two of the more popular ones:

EBIT (pronounced E-bit) is earnings before interest and taxes, a useful and widely used measure of a business's income before it is divided among creditors, owners, and the taxman. EBIT is sometimes used interchangeably with operating income.

EBITDA (pronounced E-bit-da) is earnings before interest, taxes, depreciation, and amortization. EBITDA has its uses in some industries, such as broadcasting, where depreciation charges may routinely overstate true economic depreciation. However, as Warren Buffett notes, treating EBITDA as equivalent to earnings is tantamount to saying that a business is the commercial equivalent of the pyramids—forever state-of-the-art, never needing to be replaced, improved, or refurbished. In Buffett's view, EBITDA is a number favored by investment bankers when they cannot justify a deal based on EBIT.

Sources and Uses Statements

Two very basic but valuable things to know about a company are where it gets its cash and how it spends the cash. At first blush, it might appear that the income statement will answer these questions because it records flows of resources over time. But further reflection will convince you that the income statement is deficient in two respects: It includes accruals that are not cash flows, and it lists only cash flows associated with the sale of goods or services during the accounting period. A host of other cash receipts and disbursements do not appear on the income statement. Thus, Hasbro increased its investment in accounts receivable by $102 million in 2016 (Table 1.2) with little or no trace of this buildup on its income statement. Hasbro also decreased long-term debt by almost $350 million with little effect on its income statement.

To gain a more accurate picture of where a company got its money and how it spent it, we need to look more closely at the balance sheet or, more precisely, two balance sheets. Use the following two-step procedure. First, place two balance sheets for different dates side by side, and note all of the changes in accounts that occurred over the period. The changes for Hasbro in 2016 appear in the rightmost column of Table 1.2. Second, segregate the changes into those that generated cash and those that consumed cash. The result is a *sources and uses statement.*

Here are the guidelines for distinguishing between a source and a use of cash:

- *A company generates cash in two ways: by reducing an asset or by increasing a liability.* The sale of used equipment, the liquidation of inventories, and the reduction of accounts receivable are all reductions in asset accounts and are all sources of cash to the company. On the liabilities side of the balance sheet, an increase in a bank loan and the sale of common stock are increases in liabilities, which again generate cash.
- *A company also uses cash in two ways: to increase an asset account or to reduce a liability account.* Adding to inventories or accounts receivable and building a new plant all increase assets and all use cash. Conversely, the repayment of a bank loan, the reduction of accounts payable, and an operating loss all reduce liabilities and all use cash.

Because it is difficult to spend money you don't have, total uses of cash over an accounting period must equal total sources.

Table 1.4 presents a 2016 sources and uses statement for Hasbro Inc. The single largest source for Hasbro is an increase in debt due in one year of $358 million. This amount is almost exactly offset by a decrease in long-term debt. Together, it looks like about $350 million in Hasbro's long-term debt is maturing within the coming year, and the firm's accountants have moved

TABLE 1.4 Hasbro Inc. Sources and Uses Statement, 2016 ($ millions)

Source: Data from Hasbro 2016 annual report and Compustat

Sources	
Reduction in other current assets	49
Reduction in goodwill and intangible assets	57
Increase in debt due in one year	358
Increase in accounts payable	79
Increase in accrued liabilities	117
Increase in total shareholders' equity	199
Total sources	$ 859
Uses	
Increase in cash and cash equivalents	306
Increase in accounts receivable	102
Increase in inventories	3
Increase in net property, plant, and equipment	30
Increase in other assets	36
Decrease in long-term debt	348
Decrease in other long-term liabilities	34
Total uses	$ 859

it from long-term debt into debt due in one year. As we will discuss soon, Hasbro's other major sources and uses relate more directly to operations.

The Two-Finger Approach

I personally do not spend a lot of time constructing sources and uses statements. It might be instructive to go through the exercise once or twice just to convince yourself that sources really do equal uses. But once beyond this point, I recommend using a "two-finger approach." Put the two balance sheets side by side, and quickly run any two fingers down the columns in search of big changes. This should enable you to quickly observe that the largest numbers again show the shift of maturing debt out of long-term and into debt due

How Can an Increase in Cash Be a Use of Cash?

One potential source of confusion in Table 1.4 is that the increase in cash and cash equivalents in 2016 appears as a use of cash. How can an increase in cash be a use of cash? Simple. It is the same as when you deposit money into your checking account. You increase your bank balance but have less cash on hand to spend. Conversely, a withdrawal from your bank account decreases your balance but increases spendable cash in your pocket.

in one year. Otherwise, the majority of Hasbro's cash came from shareholders' equity and increased accrued liabilities and most of it went to increase accounts receivable and build up Hasbro's cash balance. In 30 seconds or less, you have the essence of a sources and uses analysis and are free to move on to more stimulating activities. The other changes are largely window dressing of more interest to accountants than to managers.

The Cash Flow Statement

Identifying a company's principal sources and uses of cash is a useful skill in its own right. It is also an excellent starting point for considering the cash flow statement, the third major component of financial statements along with the income statement and the balance sheet.

In essence, a cash flow statement just expands and rearranges the sources and uses statement, placing each source or use into one of three broad categories. The categories and their values for Hasbro in 2016 are as follows:

Category	Source (or Use) of Cash ($ millions)
1. Cash flows from operating activities	$775
2. Cash flows from investing activities	($138)
3. Cash flows from financing activities	($331)

Double-entry bookkeeping guarantees that the sum of the cash flows in these three categories equals the change in cash balances over the accounting period.

Table 1.5 presents a complete cash flow statement for Hasbro in 2016. The first category, "cash flows from operating activities," can be thought of as a rearrangement of Hasbro's financial statements to eliminate the effects of accrual accounting on net income. First, we add all noncash charges, such as depreciation and amortization, back to net income, recognizing that these charges did not entail any cash outflow. Then, we add the changes in current assets and liabilities to net income, acknowledging, for instance, that some sales did not increase cash because customers had not yet paid, while some expenses did not reduce cash because the company had not yet paid. Changes in other current assets and liabilities, such as inventories, appear here because the accountant, following the matching principle, ignored these cash flows when calculating net income.

If cash flow statements were just a reshuffling of sources and uses statements, as many textbook examples suggest, they would be redundant, for a reader could make his own in a matter of minutes. A chief attraction of cash

TABLE 1.5 **Hasbro Inc. Cash Flow Statement, 2016 ($ millions)***

Source: Data from Hasbro 2016 annual report and Compustat

Cash Flows from Operating Activities	
Net income	$ 551
Adjustments to reconcile net income to net cash provided by operating activities:	
Depreciation and amortization	154
Stock-based compensation expense	62
Changes in assets and liabilities:	
Increase in accounts receivables	(150)
Increase in inventories	(12)
Decrease in other current assets	7
Increase in accounts payable and accrued liabilities	204
Other	(41)
Net cash provided by operating activities	775
Cash Flows from Investing Activities	
Capital expenditures	(155)
Other investing activities	17
Net cash used by investing activities	(138)
Cash Flows from Financing Activities	
Proceeds from stock option transactions	42
Repurchase of common stock	(150)
Dividends paid	(249)
Net proceeds from short-term borrowings	9
Other financing activities	17
Net cash provided by financing activities	(331)
Net increase (decrease) in cash	306
Cash at beginning of year	977
Cash and marketable securities at end of year	$1,282

*Totals may not add due to rounding.

flow statements is that companies reorganize their cash flows into new and sometimes revealing categories. To illustrate, Hasbro's cash flow statement in Table 1.5 reveals that during 2016 it paid dividends of $249 million, repurchased $150 million of its common stock, and invested $155 million in new capital expenditures. This is the only place in its financial statements where these basic activities are even mentioned.

A second attraction of a cash flow statement is that it casts a welcome light on firm solvency by highlighting the extent to which operations are generating or consuming cash. Hasbro's cash flow statement in 2016 indicates

Why Are the Numbers Different?

Hasbro's sources and uses statement in Table 1.4 tells us that accounts receivable rose $102 million in 2016, yet its cash flow statement in Table 1.5 says that accounts receivable increased $150 million over the same period. Nor is this an isolated example. Many of the apparently identical quantities differ from one statement to the other. Why the difference?

Here are two possible answers. Companies often divide changes in current assets and liabilities into two parts: those attributable to existing activities, and those due to newly acquired businesses, with the first appearing in cash flows from operating activities and the second in cash flows from investing activities. By pushing as much of the increase into investing activities as possible, Hasbro enhances its recorded cash generated by operating activities—an appealing outcome. The second answer involves exchange rates. Hasbro has assets and liabilities of various types scattered all over the world. To construct a consolidated balance sheet, its accountants translate the company's foreign-denominated accounts into U.S. dollars at the then prevailing exchange rates. As a result, the balance sheet changes we observe on their consolidated statements are due at least in part to changing currency values. However, because the currency-induced changes are not cash flows until the assets or liabilities are brought home, Hasbro omits them from the numbers appearing on its cash flow statement.

Are these answers complicated? Yes. Do the manipulations described add to our understanding of Hasbro's performance? I doubt it.

that cash flow from operating activities exceeded net income by a hearty 40 percent. One reason for the difference is that the income statement includes a $154 million noncash charge for depreciation. An even larger amount comes from an increase of over $200 million in accounts payable and accrued liabilities. This includes money that Hasbro owes its suppliers (the accounts payable) and various other obligations such as payroll and dividends that have been promised but not yet paid.

Another noteworthy entry on Hasbro's cash flow statement is "stock-based compensation expense," which contributed $62 million to cash flow from operations in 2016. After a long and bitter battle among businesses, Congress, and accounting regulators, employee stock options are finally, and correctly, classified as an expense. However, they are not a cash flow, neither when they are given to the employee nor when she converts them into company stock. So they too must be added back to net income when calculating cash flow from operations. If you are wondering how stock options can be an expense when the firm never seems to have to pay any cash to anyone, the answer is that they are a cost to shareholders, who see their ownership percentage diluted as employees acquire shares without paying full value for them.

Some analysts maintain that net cash provided by operating activities, appearing on the cash flow statement, is a more reliable indicator of firm performance than net income. They argue that because net income depends on myriad

estimates, allocations, and approximations, devious managers can easily manipulate it. Numbers appearing on a company's cash flow statement, on the other hand, record the actual movement of cash, and are thus seen to be more objective measures of performance.

What Is Cash Flow?

So many conflicting definitions of *cash flow* exist today that the term has almost lost its meaning. At one level, cash flow is very simple. It is the movement of money into or out of a cash account over a period of time. The problem arises when we try to be more specific. Here are four common types of cash flow you are apt to encounter.

$$\text{Net cash flow} = \text{Net income} + \text{Noncash items}$$

Often known in investment circles as cash earnings, net cash flow is intended to measure the cash a business generates, as distinct from the earnings—a laudable objective. Applying the preceding formula to Hasbro's 2016 figures (Table 1.5), its net cash flow was $803 million, equal to net income plus depreciation, and other noncash charges.

A problem with net cash flow as a measure of cash generation is that it implicitly assumes a business's current assets and liabilities are either unrelated to operations or do not change over time. In Hasbro's case, the cash flow statement reveals that changes in a number of current assets and liabilities consumed $29 million in cash. A more inclusive measure of cash generation is therefore cash flow from operating activities as it appears on the cash flow statement.

$$\begin{aligned}\text{Case flow from operating activities} = {} & \text{Net cash flow} \\ & \pm \text{Changes in current assets and liabilities}\end{aligned}$$

A third, even more inclusive measure of cash flow, popular among finance specialists is

$$\text{Free cash flow} = \begin{array}{l}\text{Total cash available for distribution to owners and creditors} \\ \text{after funding all worthwhile investment activities}\end{array}$$

Free cash flow extends cash flow from operating activities by recognizing that some of the cash a business generates must be plowed back into the business, in the form of capital expenditures, to support growth. Abstracting from a few technical details, free cash flow is essentially cash flow from operating activities less capital expenditures. As we will see in Chapter 9, free cash flow is a fundamental determinant of the value of a business. Indeed, one can argue that the principal means by which a company creates value for its owners is to increase free cash flow.

Yet another widely used cash flow is

$$\text{Discounted cash flow} = \begin{array}{l}\text{A sum of money today having the same value} \\ \text{as a future stream of cash receipts and disbursements}\end{array}$$

Discounted cash flow refers to a family of techniques for analyzing investment opportunities that take into account the time value of money. A standard approach to valuing investments and businesses uses discounted cash flow techniques to calculate the present value of projected free cash flows. This is the focus of the last three chapters of this book.

My advice when tossing cash flow terms about is to either use the phrase broadly to refer to a general movement of cash or to define your terms carefully.

There is certainly some merit to this view, but also two problems. First, low or even negative net cash provided by operating activities does not necessarily indicate poor performance. Rapidly growing businesses in particular must customarily invest in current assets, such as accounts receivable and inventories, to support increasing sales. And although such investments reduce net cash provided by operating activities, they do not in any way suggest poor performance. Second, cash flow statements turn out to be less objective, and thus less immune to manipulation than might be supposed. Here's a simple example. Suppose two companies are identical except that one sells its product on a simple open account, while the other loans its customers money enabling them to pay cash for the product. In both cases, the customer has the product and owes the seller money. But the increase in accounts receivable recorded by the first company on each sale will lower its cash flows from operating activities relative to the second, which can report the customer loan as part of investing activities. Because the criteria for apportioning cash flows among operating, investing, and financing activities are ambiguous, subjective judgment must be used in the preparation of cash flow statements.

Much of the information contained in a cash flow statement can be gleaned from careful study of a company's income statement and balance sheet. Nonetheless, the statement has three principal virtues. First, accounting neophytes and those who do not trust accrual accounting have at least some hope of understanding it. Second, the statement provides more accurate information about certain activities, such as share repurchases and employee stock options than one can infer from income statements and balance sheets alone. Third, it casts a welcome light on cash generation and solvency.

Financial Statements and the Value Problem

To this point, we have reviewed the basics of financial statements and grappled with the distinction between earnings and cash flow. This is a valuable start, but if we are to use financial statements to make informed business decisions, we must go further. We must understand the extent to which accounting numbers reflect economic reality. When the accountant tells us that Hasbro's total assets were worth $5,091 million on December 31, 2016, is this literally true, or is the number just an artificial accounting construct? To gain perspective on this issue, and in anticipation of later discussions, I want to conclude by examining a recurring problem in the use of accounting information for financial decision making.

Market Value vs. Book Value

Part of what I will call the *value problem* involves the distinction between the market value and the book value of shareholders' equity. Hasbro's 2016 balance sheet states that the value of shareholders' equity is $1,863 million. This

is known as the *book value* of Hasbro's equity. However, Hasbro is not worth $1,863 million to its shareholders or to anyone else, for that matter. There are two reasons. One is that financial statements are largely *transactions-based.* If a company purchased an asset for $1 million in 1950, this transaction provides an objective measure of the asset's value, which the accountant uses to value the asset on the company's balance sheet. Unfortunately, it is a 1950 value that may or may not have much relevance today. To further confound things, the accountant attempts to reflect the gradual deterioration of an asset over time by periodically subtracting depreciation from its balance sheet value. This practice makes sense as far as it goes, but depreciation is the only change in value an American accountant customarily recognizes. The $1 million asset purchased in 1950 may be technologically obsolete and therefore virtually worthless today; or, due to inflation, it may be worth much more than its original purchase price. This is especially true of land, which can be worth several times its original cost.

It is tempting to argue that accountants should forget the original costs of long-term assets and provide more meaningful current values. The problem is that objectively determinable current values of many assets do not exist, and it is probably not wise to rely on incumbent managers to make the necessary adjustments. Faced with a choice between relevant but subjective current values and irrelevant but objective historical costs, accountants opt for irrelevant historical costs. Accountants prefer to be precisely wrong than approximately right. This means it is the user's responsibility to make any adjustments to historical-cost asset values she deems appropriate.

Prodded by regulators and investors, the Financial Accounting Standards Board, accounting's principal rule-making organization, increasingly stresses what is known as *fair value* accounting, according to which certain assets and liabilities must appear on company financial statements at their market values instead of their historical costs. Such "marking to market" applies to selected assets and liabilities that trade actively on financial markets, including many common stocks and bonds. Proponents of fair value accounting acknowledge it will never be possible to eliminate historical-cost accounting entirely, but maintain that market values should be used whenever possible. Skeptics respond that mixing historical costs and market values in the same financial statement only heightens confusion, and that periodically revaluing company accounts to reflect changing market values introduces unwanted subjectivity, distorts reported earnings, and greatly increases earnings volatility. They point out that under fair value accounting, changes in owners' equity no longer mirror the results of company operations but also include potentially large and volatile gains and losses from changes in the market values of certain assets and liabilities. The gradual movement toward fair value accounting was initially greeted with howls of protest, especially from financial institutions

concerned that the move would increase apparent earnings volatility and, more menacingly, might reveal that some enterprises are worth less than historical-cost financial statements suggest. To these firms, the appearance of benign stability is apparently more appealing than the hint of an ugly reality.

Adjusted Earnings

For a variety of sometimes-legitimate reasons, corporate executives and business analysts have increasingly argued that official earnings measures are inadequate or inappropriate for their purposes, and have encouraged a whole cottage industry devoted to creating and promoting new and improved earnings measures, collectively known as "adjusted earnings." In 2016, Hasbro highlighted adjusted net earnings of $566 million, some $15 million above its bottom line net income of $551 million.

Adjusted earnings began appearing regularly in the early 1990s, and were controversial from the start. Because they were not constrained to follow accounting guidelines, managers often used adjusted earnings as a way to accentuate the positive or meet earnings targets by sweeping various expenses under the carpet. Initially, companies did not have to disclose how they calculated adjusted earnings, so investors were kept in the dark. As a result, adjusted earnings also became known as "earnings before the bad stuff."

In 2003, the SEC refined its rules: Companies could report adjusted earnings as long as they also reported their official net income and explained any differences between the two. There is no set definition of adjusted earnings, so managers are still free to be creative. But now at least they have to show investors what they are doing.

By 2014, over 70% of companies in the Standard and Poor's 500 reported adjusted earnings, up from just over 50% in 2009.[a] Common adjustments eliminate one-time items such as restructuring charges, litigation expenses, and acquisitions. Some companies also remove recurring items, including investment gains or losses, amortization of goodwill, or stock compensation. The adjustments, on average, make companies' earnings look better. From 2014 to 2015, adjusted earnings for the S&P 500 increased 6.6%, while corresponding net income declined 11%.[b]

Ironically, despite general skepticism, evidence suggests that, on average, adjusted earnings are more valued by investors and more predictive of future earnings and cash flows.[c] Although managers have a lot of discretion as to what goes into adjusted earnings, and some may be abusing this flexibility, as a group they appear to be making adjustments that investors value and cannot make on their own.

Still, as articulated by former SEC Chair Mary Jo White and others, concerns remain.[d] In 2016, the SEC issued new guidelines cracking down on the creative use of adjusted earnings, clarifying what it considers reasonable adjustments and requiring that companies reduce the prominence of adjusted earnings in press releases. The debate, no doubt, will continue.

[a] For more details, see Dirk Black, Theodore Christensen, Jack Ciesielski, and Benjamin Whipple, "Non-GAAP Earnings: A Consistency and Comparability Crisis?" March 2017.

[b] Robert Pozen, "No More Dizzying Earnings Adjustments," *The Wall Street Journal,* June 21, 2016.

[c] See, for example, Mark Bradshaw and Richard Sloan, "GAAP versus The Street: An Empirical Assessment of Two Alternative Definitions of Earnings," *Journal of Accounting Research* 40, 2002, pp. 41–66.

[d] A full transcript of White's keynote address in June 2016 is available at https://www.sec.gov/news/speech/chair-white-icgn-speech.html.

To understand the second, more fundamental reason Hasbro is not worth $1,863 million, recall that equity investors buy shares for the future income they hope to receive, not for the value of the firm's assets. Indeed, if all goes according to plan, most of the firm's existing assets will be consumed in generating future income. The problem with the accountant's measure of shareholders' equity is that it bears little relation to future income. There are two reasons for this. First, because the accountant's numbers are backward-looking and cost-based, they often provide few clues about the future income a company's assets might generate. Second, companies typically have a great many assets and liabilities that do not appear on their balance sheets but affect future income nonetheless. Examples include patents and trademarks, loyal customers, proven mailing lists, superior technology, and, of course, better management. It is said that in many companies, the most valuable assets go home to their spouses in the evening. Examples of unrecorded liabilities include pending lawsuits, inferior management, and obsolete production processes. The accountant's inability to measure assets and liabilities such as these means that book value is customarily a highly inaccurate measure of the value perceived by shareholders.

It is a simple matter to calculate the market value of shareholders' equity when a company's shares are publicly traded: Simply multiply the market price per share by the number of common shares outstanding. On December 31, 2016, Hasbro's common shares closed on the NASDAQ Global Select Market at $77.79. With 124.5 million shares outstanding, this yields a value of $9,685 million, or 5.2 times the book value ($9,685/$1,863 million). This figure is the market value of Hasbro's equity, often known as its market capitalization or market cap.

Table 1.6 presents the market and book values of equity for 15 representative companies. It demonstrates clearly that book value is a poor proxy for market value.

Goodwill

There is one instance in which intangible assets, such as brand names and patents, find their way onto company balance sheets. It occurs when one company buys another at a price above book value. Suppose an acquiring firm pays $100 million for a target firm and the target's assets have a book value of only $40 million and an estimated replacement value of only $60 million. To record the transaction, the accountant will allocate $60 million of the acquisition price to the value of the assets acquired and assign the remaining $40 million to a new asset commonly known as "goodwill." The acquiring company paid a handsome premium over the fair value of the target's recorded assets because it places a high value on its unrecorded, or intangible, assets. But not until the acquisition creates a piece of paper with $100 million written on it is the accountant willing to acknowledge this value.

TABLE 1.6 The Book Value of Equity Is a Poor Surrogate for the Market Value of Equity, December 31, 2016

Company	Value of Equity ($ millions)		Ratio, Market Value to Book Value
	Book	Market	
Aetna Inc.	17,881	43,614	2.4
Alphabet Inc. (Google)	139,036	540,659	3.9
Amgen Inc.	29,875	107,932	3.6
Apache Corp.	6,238	24,083	3.9
Coca-Cola Co.	23,062	177,780	7.7
Delta Air Lines Inc.	12,287	35,945	2.9
Duke Energy Corp.	41,033	54,334	1.3
Facebook Inc.	59,194	332,725	5.6
General Motors Co.	43,836	52,260	1.2
Harley-Davidson Inc.	1,920	10,265	5.3
Hasbro Inc.	1,863	9,685	5.2
Intel Corp.	66,226	171,557	2.6
Tesla Motors Inc.	4,753	34,524	7.3
United States Steel Co.	2,274	5,738	2.5
Wal-Mart Stores Inc.	77,798	203,424	2.6

Looking at Hasbro's balance sheet in Table 1.2 under the heading "goodwill and other intangible assets, net," we see that the company has $817 million, or 16 percent of total assets, in goodwill. To put this number in perspective, the median ratio of goodwill and intangible assets to total assets among Standard & Poor's 500 industrial companies—a diversified group of large firms—was 31 percent in 2016. Tobacco giant Reynolds American topped the list with a ratio of 89 percent.[1]

Economic Income vs. Accounting Income

A second dimension of the value problem is rooted in the accountant's distinction between *realized* and *unrealized* income. To anyone who has not studied too much accounting, income is what you could spend during the period and be as well off at the end as you were at the start. If Mary Siegler's assets, net of liabilities, are worth $100,000 at the start of the year and rise to $120,000 by the end, and if she receives and spends $70,000 in wages during the year, most of us would say her income was $90,000 ($70,000 in wages + $20,000 increase in net assets).

[1] For many years, accounting authorities required companies to write goodwill off as a noncash expense against income over a number of years. Now they acknowledge that most goodwill is not necessarily a wasting asset and only requires a write-down when there is evidence the value of goodwill has declined. There is no offsetting provision requiring the write-up of goodwill when values appear to have risen. If this sounds vague and capricious, I agree.

But not the accountant. Unless Mary's investments were in marketable securities with readily observable prices, he would say Mary's income was only $70,000. The $20,000 increase in the value of assets would not qualify as income because the gain was not *realized* by the sale of the assets. Because the value of the assets could fluctuate in either direction before the assets are sold, the gain is only *on paper,* and accountants generally do not recognize paper gains or losses. They consider *realization* the objective evidence necessary to record the gain, despite the fact that Mary is probably just as pleased with the unrealized gain in assets as with another $20,000 in wages.

It is easy to criticize accountants' conservatism when measuring income. Certainly the amount Mary could spend, ignoring inflation, and be as well off as at the start of the year is the commonsense $90,000, not the accountant's $70,000. Moreover, if Mary sold her assets for $120,000 and immediately repurchased them for the same price, the $20,000 gain would become realized and, in the accountant's eyes, become part of income. That income could depend on a sham transaction such as this is enough to raise suspicions about the accountant's definition.

However, we should note three points in the accountant's defense. First, if Mary holds her assets for several years before selling them, the gain or loss the accountant recognized on the sale date will equal the sum of the annual gains and losses we nonaccountants would recognize. So it's really not total income that is at issue here but simply the timing of its recognition. Second, accountants' increasing use of fair value accounting, where at least some assets and liabilities are revalued periodically to reflect changes in market value, reduces the difference between accounting and economic income. Third, even when accountants want to use fair value accounting, it is extremely difficult to measure the periodic change in the value of many assets and liabilities unless they are actively traded. Thus, even if an accountant wanted to include "paper" gains and losses in income, she would often have great difficulty doing so. In the corporate setting, this means the accountants frequently must be content to record realized rather than economic income.

Imputed Costs

A similar but subtler problem exists on the cost side of the income statement. It involves the cost of equity capital. Hasbro's accountants acknowledge that in 2016 the company had use of $1,863 million of shareholders' money, measured at book value. They would further acknowledge that Hasbro could not have operated without this money and that this money is not free. Just as creditors earn interest on loans, equity investors expect a return on their investments. Yet if you look again at Hasbro's income statement (Table 1.3), you will find no mention of the cost of this equity; interest expense appears, but a comparable cost for equity does not.

While acknowledging that equity capital has a cost, the accountant does not record it on the income statement because the cost must be imputed—that is, estimated. Because there is no piece of paper stating the amount of money Hasbro is obligated to pay owners, the accountant refuses to recognize any cost of equity capital. Once again, the accountant would rather be reliably wrong than make a potentially inaccurate estimate. The result has been serious confusion in the minds of less knowledgeable observers and continuing "image" problems for corporations.

Following is the bottom portion of Hasbro's income statement as prepared by its accountant and as an economist might prepare it. Observe that while the accountant shows earnings of $551 million, the economist records a profit of only $365 million. These numbers differ because the economist includes a $186 million charge as a cost of equity capital, while the accountant pretends equity is free. (We will consider ways to estimate a company's cost of equity capital in Chapter 8. Here, for illustrative purposes only, I have assumed a 10 percent annual equity cost and applied it to the book value of Hasbro's equity [$186 million = 10% × $1,863 million].)

($ millions)	Accountant	Economist
Operating income	$821	$821
Interest expense	97	97
Other nonoperating expenses	14	14
Cost of equity		186
Income before taxes	710	524
Provision for taxes	159	159
Accounting earnings	$ 551	
Economic earnings		$ 365

The distinction between accounting earnings and economic earnings might be only a curiosity if everyone understood that positive accounting earnings are not necessarily a sign of superior or even commendable performance. But when many labor unions and politicians view accounting profits as evidence that a company can afford higher wages, higher taxes, or more onerous regulation, and when most managements view such profits as justification for distributing handsome performance bonuses, the distinction can be an important one. Keep in mind, therefore, that the right of equity investors to expect a competitive return on their investments is every bit as legitimate as a creditor's right to interest and an employee's right to wages. All voluntarily contribute scarce resources, and all are justified in expecting compensation. Remember too that a company is not shooting par unless its economic profits are zero or

International Financial Reporting Standards

A danger inherent in any cross-country comparison of accounting numbers is that accountants in different countries may not keep score by the same rules. Happily, this problem has diminished greatly over the past decade or so, and what optimists might call international accounting standards are emerging. The European Union took the lead in this initiative as part of its much broader effort to hammer out a common, integrated marketplace among member countries. After some 30 years of study, debate, and political wrangling, the accounting initiative became a reality on January 1, 2005, when all 7,000 publicly traded companies in Europe dumped their national accounting rules in favor of the newly designated International Financial Reporting Standards (IFRS). Today, over 120 countries on six continents have adopted IFRS, either directly or by aligning national rules to the international standards. Conspicuously absent from the earlier adopters have been the United States, Japan, and China. Japan now allows voluntary adoption of IFRS, and both Japan and China are working toward convergence with international standards, although no deadlines have been set. For a while, U.S. accounting regulators were working on a project to converge with the international standards, but these efforts have largely been put on hold, at least for now.

For many years, U.S. accounting authorities viewed American accounting rules as the gold standard to which other countries could only aspire, and their approach to international accounting standards was to invite the rest of the world to adopt theirs. But accounting scandals in the early 2000s and the ensuing collapse of the accounting firm Arthur Andersen have made Americans a bit more humble about their accounting rules and a bit more willing to compromise.

A major barrier to greater transatlantic cooperation on accounting standards has been differing philosophical perspectives on the role such standards should play. The European philosophy is to articulate broad accounting principles and to charge accountants and executives to prepare company accounts consistent with the spirit of those principles. Concerned that principles alone would leave too much room for manipulation, the American approach has been to lay down voluminous, detailed rules defining how each transaction is to be recorded and to demand strict conformance to the letter of those rules. Ironically, this rules-based philosophy seems to have backfired, for rather than limiting manipulation, the American "bright-line" approach appears to have encouraged it by shifting some executives' focus from preparing fair and accurate statements to figuring out how best to beat the rules. The argument "we didn't break any rules, so we must be innocent" appears to have been an enticing one.

One response to the breakdown in U.S. accounting standards was passage of the Sarbanes–Oxley Act of 2002, which among other changes requires chief executives and chief financial officers to personally attest to the appropriateness of their company's financial reports. Another was to take the European, broad-brush approach more seriously. Indeed, there was a time some 15 years ago when it appeared that U.S. regulators and accounting authorities were about to name a definitive date when the United States would adopt IFRS. Today, this no longer appears likely. Instead, U.S. and international accounting authorities appear intent on integrating the two standards on a piecemeal basis over an extended period. Not a single standard perhaps, but at least a workable compromise.

greater. By this criterion, Hasbro still had a decent year in 2016, but not quite as stellar as accounting earnings would suggest. On closer inspection, you will find that many companies reporting apparently large earnings are really performing like weekend duffers when the cost of equity is included.

We will look at the difference between accounting and economic profits again in more detail in Chapter 8 under the rubric of economic value added (EVA). In recent years, EVA has become a popular yardstick for assessing company and managerial performance.

In sum, those of us interested in financial analysis eventually develop a love-hate relationship with accountants. The value problem means that financial statements typically yield distorted information about company earnings and market value. This limits their applicability for many important managerial decisions. Yet financial statements frequently provide the best information available, and if we bear their limitations in mind, they can be a useful starting point for analysis. In the next chapter, we consider the use of accounting data for evaluating financial performance.

SUMMARY

1. The cash flow cycle
   - Describes the flow of cash through a company.
   - Illustrates that profits and cash flow are not the same.
   - Reminds a manager she must be at least as concerned with cash flows as with profits.
2. The balance sheet
   - Is a snapshot at a point in time of what a company owns and what it owes.
   - Rests on the fundamental accounting equation, assets = liabilities + owners' equity, which applies to individual transactions as well as entire balance sheets.
   - Lists assets and liabilities with maturities of less than a year as current.
   - Shows shareholders' equity on the liability side of the balance sheet as the accounting value of owners' claims against existing assets.
3. The income statement
   - Divides changes in owners' equity occurring over a period of time into revenues and expenses, where revenues are increases in equity and expenses are reductions.
   - Defines net income, or earnings, as the difference between revenues and expenses.

- Identifies revenues generated during the period and matches the corresponding costs incurred in generating the revenue.
- Embodies the accrual principle, which records revenues and expenses when there is reasonable certainty that payment will be made, not when cash is received or disbursed.
- Records depreciation as the allocation of past expenditures for long-lived assets to future time periods to match revenues and expenses.

4. The cash flow statement
   - Focuses on solvency, having enough cash to pay bills as they come due.
   - Is an elaboration of a simple sources and uses statement, according to which increases in asset accounts and reductions in liability accounts are uses of cash, while opposite changes in assets and liabilities are sources of cash.
5. The value problem
   - Emphasizes that accounting statements suffer from several limitations when used to assess economic performance or value businesses:
     – Many accounting values are transactions-based and hence backward-looking, while market values are forward-looking.
     – Accounting often creates a false dichotomy between realized and unrealized income.
     – Accountants refuse to assign a cost to equity capital, thereby suggesting to lay observers that positive accounting profit means financial health.
   - Is diminished by the use of fair value accounting, according to which the value of widely traded assets and liabilities appear at market price rather than historical cost but at the potential cost of distortions, volatility, complexity, and subjectivity.

ADDITIONAL RESOURCES

Downes, John, and Jordan Elliot Goodman. *Dictionary of Finance and Investment Terms.* 9th ed. New York: Barron's Educational Services, Inc., 2012. 912 pages.

More than 5,000 terms clearly defined. Available in paperback.

Friedlob, George T., and Ralph E. Welton. *Keys to Reading an Annual Report.* 4th ed. New York: Barron's Educational Services, Inc., 2008. 208 pages.

A no-nonsense, practical guide to understanding financial reports.

Horngren, Charles T., Gary L. Sundem, John A. Elliott, and Donna Philbrick. *Introduction to Financial Accounting.* 11th ed. Englewood Cliffs, NJ: Prentice Hall, 2013. 648 pages.

The high-octane stuff—a top-selling college text. Everything you ever wanted to know about the topic and then some.

Libby, Robert, Patricia Libby, and Frank Hodge. *Financial Accounting,* 9th ed., McGraw Hill Education, 2016. 864 pages.

Another best-selling accounting text.

Tracy, John A., and Tage Tracy. *How to Read a Financial Report: Wringing Vital Signs Out of the Numbers.* 8th ed. New York: John Wiley & Sons, 2014. 240 pages.

A lively, accessible look at practical aspects of financial statement analysis. Available in paperback.

e145.stanford.edu/upload/Merrill_Lynch.pdf
From this site you can download a free copy of Merrill Lynch's classic "How to Read a Financial Report" as a PDF file.

duke.edu/~charvey/Classes/wpg/glossary.htm
Duke Professor Campbell Harvey's glossary of finance, with more than 8,000 terms defined and more than 18,000 hyperlinks.

nysscpa.org/glossary
Another exhaustive glossary of accounting terms.

secfilings.com
EDGAR, a Securities and Exchange Commission site, contains virtually all filings of public companies in the United States. It is a treasure trove of financial information, including annual and quarterly reports. The referenced site offers a slick way to access EDGAR, including direct downloading of individual filings in PDF and RTF formats. It's free, and I use it often.

cfo.com
An informative, practitioner-oriented website provided by the publishers of CFO magazine. Offers articles on current issues in accounting and finance.

PROBLEMS

Answers to odd-numbered problems appear at the end of the book. Answers to even-numbered problems and additional exercises are available in the Instructor Resources within McGraw-Hill's *Connect* (see the Preface for more information).

1. a. What does it mean when cash flow from operations on a company's cash flow statement is negative? Is this bad news? Is it dangerous?
   b. What does it mean when cash flow from investing activities on a company's cash flow statement is negative? Is this bad news? Is it dangerous?
   c. What does it mean when cash flow from financing activities on a company's cash flow statement is negative? Is this bad news? Is it dangerous?
2. Braintree Corporation has $5 billion in assets, $4 billion in equity, and earned a profit of $100 million last year as the economy boomed. Senior

management proposes paying themselves a large cash bonus in recognition of their performance. As a member of Braintree's board of directors, how would you respond to this proposal?

3. Answer true or false to each of the following. Briefly explain your reasoning for each answer.
   a. If a company gets into financial difficulty, it can use some of its shareholders' equity to pay its bills for a time.
   b. It is impossible for a firm to have a negative book value of equity without the firm going into bankruptcy.
   c. If a company increases its dividend, its net income will decrease.
   d. You can construct a sources and uses statement for 2017 if you have a company's balance sheets for year-end 2016 and 2017.
   e. The "goodwill" account on the balance sheet is an attempt by accountants to measure the benefits that result from a company's public relations efforts in the community.
   f. A reduction in an asset account is a use of cash, while a reduction in a liability account is a source of cash.
   g. A company's market value of equity must always be higher than its book value of equity.
4. Explain briefly how each of the following transactions would affect a company's balance sheet. (Remember, assets must equal liabilities plus owners' equity before and after the transaction.)
   a. Sale of used equipment with a book value of $300,000 for $500,000 cash.
   b. Purchase of a new $80 million building, financed 40 percent with cash and 60 percent with a bank loan.
   c. Purchase of a new building for $60 million cash.
   d. A $40,000 payment to trade creditors.
   e. A firm's repurchase of 10,000 shares of its own stock at a price of $24 per share.
   f. Sale of merchandise for $80,000 in cash.
   g. Sale of merchandise for $120,000 on credit.
   h. A dividend payment to shareholders of $50,000.
5. Why do you suppose financial statements are constructed on an accrual basis rather than a cash basis when cash accounting is so much easier to understand?
6. Table 3.1 in Chapter 3 presents financial statements over the period 2014–2017 for R&E Supplies, Inc.
   a. Construct a sources and uses statement for the company over this period (one statement for all three years).
   b. What insights, if any, does the sources and uses statement give you about the financial position of R&E Supplies?

7. You are responsible for labor relations in your company. During heated labor negotiations, the General Secretary of your largest union exclaims, "Look, this company has $15 billion in assets, $7.5 billion in equity, and made a profit last year of $300 million—due largely, I might add, to the effort of union employees. So don't tell me you can't afford our wage demands." How would you reply?
8. You manage a real estate investment company. One year ago, the company purchased 10 parcels of land distributed throughout the community for $10 million each. A recent appraisal of the properties indicates that five of the parcels are now worth $8 million each, while the other five are worth $16 million each. Ignoring any income received from the properties and any taxes paid over the year, calculate the investment company's accounting earnings and its economic earnings in each of the following cases:
   a. The company sells all of the properties at their appraised values today.
   b. The company sells none of the properties.
   c. The company sells the properties that have fallen in value and keeps the others.
   d. The company sells the properties that have risen in value and keeps the others.
   e. After returning from a property management seminar, an employee recommends that the company adopt an end-of-year policy of always selling properties that have risen in value since purchase and always retaining properties that have fallen in value. The employee explains that, with this policy, the company will never show a loss on its real estate investment activities. Do you agree with the employee? Why, or why not?
9. Please ignore taxes for this problem. During 2016, Acadia, Inc. earned net income of $500,000. The firm increased its accounts receivable during the year by $150,000. The book value of its assets declined by an amount equal to the year's depreciation charge, or $130,000, and the market value of its assets increased by $25,000. Based only on this information, how much cash did Acadia generate during the year?
10. Jonathan currently is a brew master for Acme Brewery. He really enjoys his job, but is intrigued by the prospect of quitting and starting his own brewery. He currently makes $62,000 at Acme Brewery. Jonathan anticipates that his new brewery will have annual revenues of $230,000, and total annual expenses for operating the brewery, outside of any payments to Jonathan, will be $190,000. Jonathan comes to you with his idea. He believes that he would be equally happy with either option, but that starting his own brewery is the right decision in light of its profitability. Ignoring what might happen beyond the first year, do you agree with him? Why or why not?

11. Selected information for Blake's Restaurant Supply follows.

	($ millions)	
	2016	**2017**
Net sales	694	782
Cost of goods sold	450	502
Depreciation	51	61
Net income	130	142
Finished goods inventory	39	29
Accounts receivable	57	87
Accounts payable	39	44
Net fixed assets	404	482
Year-end cash balance	86	135

    a. During 2017, how much cash did Blake's collect from sales?
    b. During 2017, what was the cost of goods produced by the company?
    c. Assuming the company neither sold nor salvaged any assets during the year, what were the company's capital expenditures during 2017?
    d. Assuming there were no financing cash flows during 2017 and basing your answer solely on the information provided, what was Blake's cash flow from operations in 2017?

12. Below are summary cash flow statements for three roughly equal-sized companies.

	($ millions)		
	A	**B**	**C**
Net cash flows from operating activities	(300)	(300)	300
Net cash used in investing activities	(900)	(30)	(90)
Net cash from financing activities	1,200	210	(240)
Cash balance at beginning of year	150	150	150

    a. Calculate each company's cash balance at the end of the year.
    b. Explain what might cause company C's net cash from financing activities to be negative.
    c. Looking at companies A and B, which company would you prefer to own? Why?
    d. Is company C's cash flow statement cause for any concern on the part of C's management or shareholders? Why or why not?

13. Starbucks Corporation recently had a market value of equity of $90 billion with 1.5 billion shares outstanding. The book value of its equity is $6 billion.

a. What is Starbucks' stock price per share? What is its book value per share?
b. If the company repurchases 25 million shares in the stock market at their current price, how will this affect the book value of equity if all else remains the same?
c. If there are no taxes or transaction costs, and investors do not change their perceptions of the firm, what should the market value of the firm be after the repurchase?
d. Instead of a share repurchase, the company decides to raise money by selling an additional 25 million shares on the market. If it can issue these additional shares at the current market price, how will this affect the book value of equity if all else remains the same?
e. If there are no taxes or transaction costs, and investors do not change their perception of the firm, what should the market value of the firm be after this stock issuance? What would its price per share be?

14. A spreadsheet containing Whistler Corporation's financial statements is available for download from McGraw-Hill's *Connect* or your course instructor (see the Preface for more information).
    a. Prepare a sources and uses statement for Whistler Corp. for fiscal year 2017.
    b. Prepare a cash flow statement for Whistler Corp. for fiscal year 2017.

CHAPTER TWO

Evaluating Financial Performance

". . . liabilities are always 100 percent good. It's the assets you have to worry about."

Charlie Munger

Source: The Best of Lex, *Financial Times,* Alan Livsey, Feb. 17, 2017.

The cockpit of a 747 jet looks like a three-dimensional video game. It is a sizable room crammed with meters, switches, lights, and dials requiring the full attention of three highly trained pilots. When compared to the cockpit of a single-engine Cessna, it is tempting to conclude that the two planes are different species rather than distant cousins. But at a more fundamental level, the similarities outnumber the differences. Despite the 747's complex technology, the 747 pilot controls the plane in the same way the Cessna pilot does: with a stick, a throttle, and flaps. And to change the altitude of the plane, each pilot makes simultaneous adjustments to the same few levers available for controlling the plane.

Much the same is true of companies. Once you strip away the facade of apparent complexity, the levers with which managers affect their companies' financial performance are comparatively few and are similar from one company to another. The executive's job is to control these levers to ensure a safe and efficient flight. And like the pilot, the executive must remember that the levers are interrelated; one cannot change the business equivalent of the flaps without also adjusting the stick and the throttle.

The Levers of Financial Performance

In this chapter, we analyze financial statements for the purpose of evaluating performance and understanding the levers of management control. We begin by studying the ties between a company's operating decisions, such as how many units to make this month and how to price them, and its financial performance. These operating decisions are the levers by which management controls financial performance. Then, we broaden the discussion to consider

the uses and limitations of ratio analysis as a tool for evaluating performance. To keep things practical, we will again use the financial statements for Hasbro Inc., presented in Tables 1.2, 1.3, and 1.5 of the last chapter, to illustrate the techniques. The chapter concludes with an evaluation of Hasbro's financial performance relative to its competition. At the end of the chapter, Table 2.4 presents summary definitions of the principal ratios appearing throughout the chapter.

Return on Equity

By far the most popular yardstick of financial performance among investors and senior managers is the *return on equity (ROE),* defined as

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Shareholders' equity}}$$

Hasbro's ROE for 2016 was

$$\text{ROE} = \frac{\$551}{\$1{,}863} = 29.6\%$$

It is not an exaggeration to say that the careers of many senior executives rise and fall with their firms' ROEs. ROE is accorded such importance because it is a measure of the *efficiency* with which a company employs owners' capital. It is a measure of earnings per dollar of invested equity capital or, equivalently, of the percentage return to owners on their investment. In short, it measures bang per buck.

Later in this chapter, we will consider some significant problems with ROE as a measure of financial performance. For now, let us accept it provisionally as at least widely used and see what we can learn.

The Three Determinants of ROE

To learn more about what management can do to increase ROE, suppose we rewrite ROE in terms of its three principal components:

$$\text{ROE} = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Shareholders' equity}}$$

Denoting the last three ratios as the profit margin, asset turnover, and financial leverage, respectively, the expression can be written as

$$\begin{matrix}\text{Return on} \\ \text{equity}\end{matrix} = \begin{matrix}\text{Profit} \\ \text{margin}\end{matrix} \times \begin{matrix}\text{Asset} \\ \text{turnover}\end{matrix} \times \begin{matrix}\text{Financial} \\ \text{leverage}\end{matrix}$$

This says that management has only three levers for controlling ROE: (1) the earnings squeezed out of each dollar of sales, or the *profit margin;* (2) the sales generated from each dollar of assets employed, or the *asset turnover;* and (3) the amount of equity used to finance the assets, or the *financial*

leverage.[1] With few exceptions, whatever management does to increase these ratios increases ROE.

Note, too, the close correspondence between the levers of performance and company financial statements. Thus, the profit margin summarizes a company's income statement performance by showing profit per dollar of sales. The asset turnover ratio summarizes the company's management of the asset side of its balance sheet by showing the resources required to support sales. And the financial leverage ratio summarizes management of the liabilities side of the balance sheet by showing the amount of shareholders' equity used to finance the assets. This is reassuring evidence that, despite their simplicity, the three levers do capture the major elements of a company's financial performance.

We find that Hasbro's 2016 ROE was generated as follows:

$$\frac{\$551}{\$1{,}863} = \frac{\$551}{\$5{,}020} \times \frac{\$5{,}020}{\$5{,}091} \times \frac{\$5{,}091}{\$1{,}863}$$

$$29.6\% = 11.0\% \times 0.986 \times 2.73$$

Table 2.1 presents ROE and its three principal components for 10 highly diverse businesses. It shows quite clearly that there are many paths to heaven: Even for companies with ROEs that are quite similar, the combinations of profit margin, asset turnover, and financial leverage producing these end results vary widely. ROE ranges from a high of 31.7 percent for Unilever, a consumer goods company selling products ranging from shampoo to soup, to a low of 10.1 percent for energy company Southern Co., while the range for the profit margin, to take one example, is from a low of 1.7 percent for online retailer Amazon.com to a high of 23.5 percent for banker JPMorgan Chase. ROE differs by about 3 to 1 high to low, but the profit margin varies by a factor of 14 to 1. Comparable ranges for asset turnover and financial leverage are 46 to 1 and 9 to 1, respectively.

Why are ROEs similar across firms, while profit margins, asset turnovers, and financial leverages differ dramatically? The answer, in a word, is competition. Attainment of an unusually high ROE by one company acts as a magnet to attract rivals anxious to emulate the superior performance. As rivals enter the market, the heightened competition drives the successful company's ROE back toward the average. Conversely, unusually low ROEs repel potential new competitors and drive existing companies out of business so that, over time, survivors' ROEs rise toward the average.

To understand how managerial decisions and a company's competitive environment combine to affect ROE, we will examine each lever of

[1] At first glance the ratio of assets to shareholders' equity may not look like a measure of financial leverage, but consider the following:

$$\frac{\text{Assets}}{\text{Equity}} = \frac{\text{Liabilities} + \text{Equity}}{\text{Equity}} = \frac{\text{Liabilities}}{\text{Equity}} + 1$$

And the liabilities-to-equity ratio clearly measures financial leverage.

TABLE 2.1 **ROEs and Levers of Performance for 10 Diverse Companies, 2016***

	Return on Equity (ROE) (%)	=	Profit Margin (P) (%)	×	Asset Turnover (A) (times)	×	Financial Leverage (T) (times)
Adobe Systems	15.7	=	20.0	×	0.46	×	1.71
Alphabet Inc. (parent of Google)	14.0	=	21.6	×	0.54	×	1.20
Amazon.com	12.3	=	1.7	×	1.63	×	4.33
Hasbro Inc.	29.6	=	11.0	×	0.99	×	2.73
JPMorgan Chase	10.8	=	23.5	×	0.04	×	10.92
Norfolk Southern	13.4	=	16.9	×	0.28	×	2.81
Southern Co.	10.1	=	12.5	×	0.18	×	4.43
Target Corp.	25.0	=	3.9	×	1.86	×	3.42
Tata Motors	12.6	=	3.6	×	1.03	×	3.43
Unilever PLC	31.7	=	9.8	×	0.93	×	3.45

*Totals may not add due to rounding.

performance in more detail. In anticipation of the discussion of ratio analysis to follow, we will also consider related commonly used financial ratios.

The Profit Margin

The profit margin measures the fraction of each dollar of sales that trickles down through the income statement to profits. This ratio is particularly important to operating managers because it reflects the company's pricing strategy and its ability to control operating costs. As Table 2.1 indicates, profit margins differ greatly among industries depending on the nature of the product sold and the company's competitive strategy.

Note too that profit margin and asset turnover tend to vary inversely. Companies with high profit margins tend to have low asset turns, and vice versa. This is no accident. Companies that add significant value to a product, such as JPMorgan Chase or Alphabet Inc., can demand high profit margins. However, because adding value to a product usually requires lots of assets, these same firms tend to have lower asset turns. At the other extreme, grocery stores and discount retailers, such as Target, bring the product in the store on forklift trucks, sell for cash, and make the customer carry out his own purchases. Because they add little value to the product, they have very low profit margins and correspondingly high asset turns. It should be apparent, therefore, that a high profit margin is not necessarily better or worse than a low one—it all depends on the combined effect of the profit margin and the asset turnover.