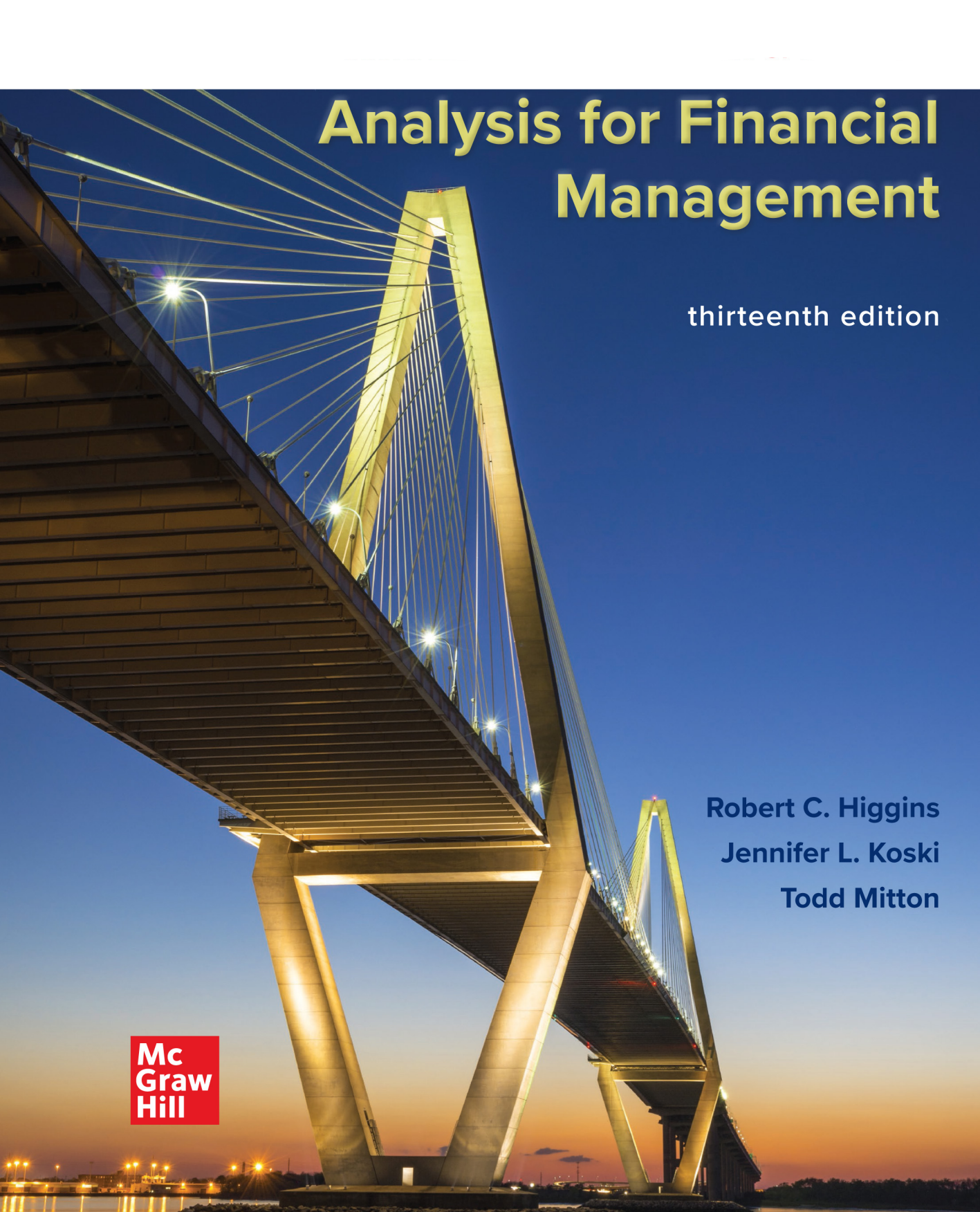




Analysis for Financial Management

thirteenth edition

Robert C. Higgins
Jennifer L. Koski
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ANALYSIS FOR FINANCIAL MANAGEMENT

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In memory of our sons

STEVEN HIGGINS

1970–2007

ALEXANDER MITTON

1997–2014

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Preface

Like its predecessors, the thirteenth 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 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 Thirteenth Edition

Noteworthy changes and refinements in the thirteenth edition include:

- Updated discussions of adjusted earnings and International Financial Reporting Standards in Chapter 1.
- Application in Chapter 3 of Argo, a new, free Excel add-in for implementing simulation analyses to financial forecasting.
- Inclusion of a discussion of Special Purpose Acquisition Companies (SPACs) in Chapter 5, in the context of trends in raising capital.
- Expanded discussion of the underinvestment problem for corporate investments and its consequences for the capital structure decision in Chapter 6.
- Updated discussions of tax inversions, EPS dilution, and research on merger performance in Chapter 9.
- Use of Polaris, Inc., a leading producer of snowmobiles, all-terrain vehicles, motorcycles, and boats, as an extended example throughout the book.

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.

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 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

Interpreting Financial Statements

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

Abraham Briloff

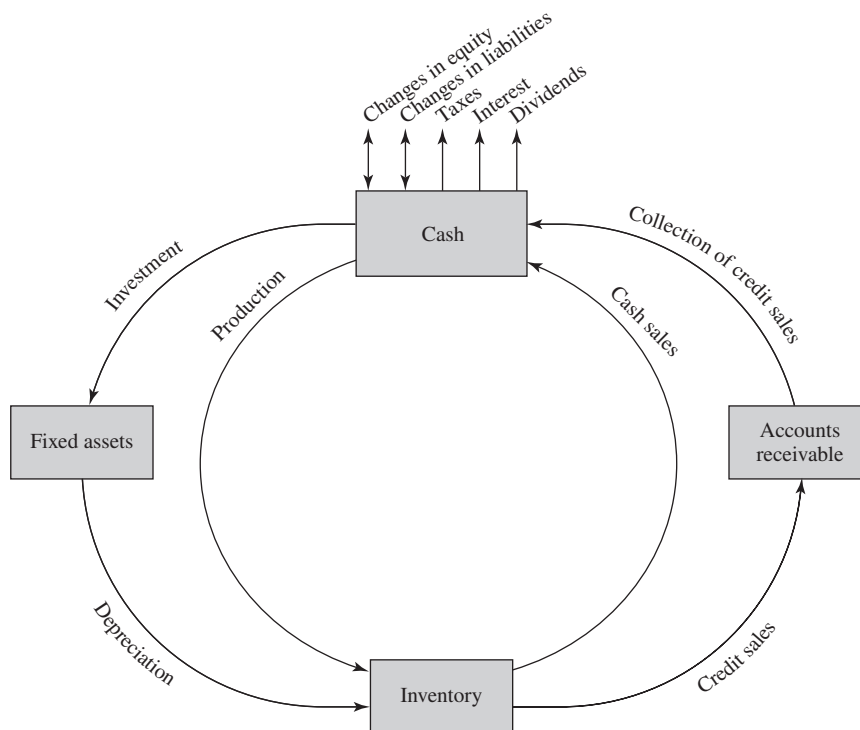
Accounting is the scorecard of business. It translates a company's diverse activities into a set of objective numbers that provide information about the firm's performance, problems, and prospects. Finance involves the interpretation of these accounting numbers for assessing performance and planning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

Overview of Financial Statements

The most important source of information for evaluating the financial health of a company is its set of 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 homeowners' 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 2021, 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 owners' 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.

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, 2021 is the beginning cash of

TABLE 1.1 Worldwide Sports Financial Transactions 2021 (\$ thousands)

	Assets				=	Liabilities		+	Equity
	Cash	Accounts Receivable	Inventory	Fixed Assets	=	Accounts Payable	Loan from Relatives		Owners' Equity
Beginning Balance 1/1/21	\$ 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 12/31/21	\$ 175	\$25	\$110	\$ 45	=	\$20	\$100		\$ 235

\$250,000 plus or minus the cash involved in each transaction. Incidentally, WWS's first year appears to have been a decent one: Owners' 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, 2021 (\$ 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	<u>\$355</u>	Owners' equity	<u>\$355</u>

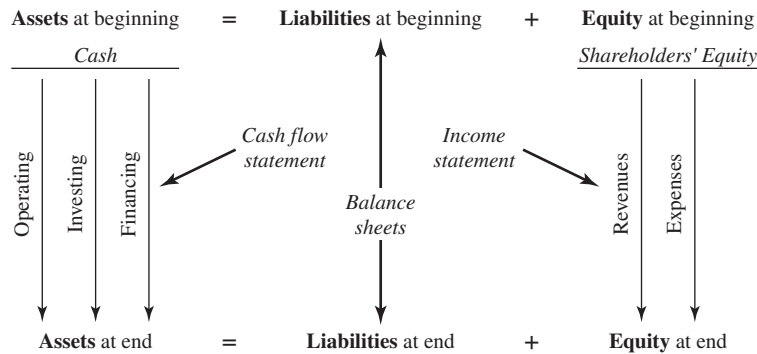
If a balance sheet is a snapshot in time, the income statement and the cash flow statement are videos, highlighting changes in two especially important balance sheet accounts over time. Business owners are naturally interested in how company operations have affected the value of their investment. The 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 2021 income statement looks like this. Note that the \$85,000 net income appearing at the bottom of the statement equals the change in owners' equity over the year.

Worldwide Sports Income Statement, 2021 (\$ thousands)	
Sales	\$900
Wages	190
Merchandise purchases	350
Depreciation	15
Gross profit	<u>\$345</u>
Other expenses	210
Interest expense	10
Income before tax	<u>\$125</u>
Income taxes	40
Net income	<u>\$ 85</u>

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.

FIGURE 1.2 Ties among Financial Statements



The Balance Sheet

POLARIS

See polaris.com. Follow Company > Investors > Financials & Filings for financial statements.

We will now take a more in-depth look at each of the key financial statements in turn, beginning with the balance sheet. To illustrate the techniques and concepts presented throughout the book, I will refer whenever possible to Polaris Inc., the self-styled “Global leader in Powersports” including snowmobiles, all-terrain vehicles (ATVs), motorcycles, and boats. In addition to the United States, Polaris has manufacturing operations in China, France, Mexico, and Poland. It has offices in 14 countries and sells its products in over 100 countries, although 80 percent of sales originate in the United States. The company’s focus, as embodied in its marketing tagline “Think Outside” is to create products that enhance the experience of outdoor enthusiasts.

Headquartered in Medina, Minnesota, a small town outside of Minneapolis, Polaris has \$7 billion in annual sales, and its stock trades on the New York Stock Exchange. The firm was founded in 1954 as one of the pioneers of the snowmobile industry. In the 1980s, Polaris diversified into off-road vehicles when they produced the first American-made ATVs. In 2011, Polaris extended its reach into on-road vehicles with its acquisition of the legendary Indian Motorcycle company. Between 2018 and 2019, two more acquisitions added three well-known boat brands to Polaris’s product portfolio. Polaris’s recent ventures include forays into electric ATVs, electric motorcycles, and special-purpose electric automobiles. In 2020, 64 percent of Polaris’s sales came from snowmobiles and off-road vehicles, with 9 percent coming from boats, 8 percent from motorcycles, and 19 percent from other products and services.

Table 1.2 presents Polaris’s balance sheets for 2019 and 2020. 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.

Polaris Inc.'s balance sheet equation for 2020 is

$$\begin{aligned} \text{Assets} &= \text{Liabilities} + \text{Shareholders' equity} \\ \$4,922 \text{ million} &= \$3,488 \text{ million} + \$1,434 \text{ million} \end{aligned}$$

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.

TABLE 1.2 Polaris Inc. Balance Sheets (\$ millions)*

Source: Polaris annual reports

	December 31		Change in
	2019	2020	Account
Assets			
Cash and cash equivalents	\$ 157	\$ 544	\$ 387
Accounts receivable	190	257	67
Inventories	1,121	1,178	57
Other current assets	158	138	(20)
Total current assets	<u>1,627</u>	<u>2,117</u>	
Gross property, plant, and equipment	2,004	2,142	138
Less accumulated depreciation and amortization	994	1,128	134
Net property, plant, and equipment	<u>1,010</u>	<u>1,014</u>	4
Goodwill and other intangible assets	1,490	1,463	(27)
Other assets	303	327	24
Total assets	<u>\$ 4,431</u>	<u>\$4,922</u>	
Liabilities and Shareholders' Equity			
Debt due in one year	167	142	(25)
Accounts payable	450	782	332
Accrued liabilities	870	908	38
Other current liabilities	41	57	16
Total current liabilities	<u>1,528</u>	<u>1,889</u>	
Long-term debt	1,512	1,294	(218)
Other long-term liabilities	282	305	23
Total liabilities	<u>3,322</u>	<u>3,488</u>	
Common stock	1	1	
Additional paid-in capital	893	984	
Retained earnings	215	449	
Total shareholders' equity	<u>1,108</u>	<u>1,434</u>	326
Total liabilities and shareholders' equity	<u>\$ 4,431</u>	<u>\$4,922</u>	

*Totals may not add due to rounding.

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 40 percent of Polaris'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

The different accounts appearing in the shareholders' equity portion of the balance sheet can often be a source of confusion. Polaris has three equity accounts: common stock, additional paid-in capital, and retained earnings (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

Polaris's income statements for 2019 and 2020 are presented in Table 1.3. Looking at Polaris's operating performance in 2020, 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
\$7,108	—	\$5,057	—	\$1,460	—	\$71	—	\$107	= \$414

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 sometimes 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

TABLE 1.3 Polaris Inc. Income Statements (\$ millions)*

Source: Polaris annual reports and Compustat

	January 1 to December 31	
	2019	2020
Net sales	\$6,863	\$7,108
Cost of goods sold	4,899	5,057
Gross profit	1,964	2,051
Selling, general, and administrative expenses	953	904
Research and development	293	296
Depreciation and amortization	235	261
Total operating expenses	1,481	1,460
Operating income	484	592
Interest expense	78	67
Other nonoperating expense (income)	(2)	4
Total nonoperating expenses	76	71
Income before income taxes	408	521
Provision for income taxes	84	107
Net income	\$ 324	\$ 414

*Totals may not add due to rounding.

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 2020, Polaris reported operating income of \$592 million and nonoperating expenses of \$71 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 Polaris, we see that revenue in 2020 was \$7,108 million, but accounts receivable increased by \$67 million. We conclude that cash received from sales during 2020 was only \$7,041 million (\$7,108 – \$67 million). The other \$67 million still awaits collection.

Depreciation

Fixed assets and their associated depreciation present the accountant with a particularly challenging problem in matching. Suppose that in 2022, 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 2022, some weird results follow. Income in 2022 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 2022, 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 2022 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 Polaris's income statement reveals that, in 2020, the company included a \$261 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 \$214 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 $([\$50 \text{ million} - \$10 \text{ million}]/10)$.

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. In the United States, tax depreciation is governed by a set of rules called the Modified Accelerated Cost Recovery System (MACRS). We will not delve into the scintillating details of MACRS here, but interested readers can refer to IRS Publication 946, a 113-page guide to all things MACRS.

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. Polaris had over \$30 million in taxes payable in 2020; in Table 1.2, this amount is included as part of the "other" current and long-term liabilities listed on their balance sheet.

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 Polaris's R&D outlays of \$296 million in 2020 may have produced technical breakthroughs that will benefit the firm for decades to come, all of the costs must be shown on Polaris's income statement in 2020. 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, Polaris increased its investment in accounts receivable by \$67 million in 2020 (Table 1.2) with little or no trace of this buildup on its income statement. Polaris also decreased long-term debt by \$218 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 Polaris in 2020 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 2020 sources and uses statement for Polaris. The largest source for Polaris is an increase in accounts payable of \$332 million, meaning that Polaris has preserved cash by not paying its suppliers

TABLE 1.4 Polaris Inc. Sources and Uses Statement, 2020 (\$ millions)

Source: Polaris annual reports and Compustat

<i>Sources</i>	
Reduction in other current assets	20
Reduction in goodwill and intangible assets	27
Increase in accounts payable	332
Increase in accrued liabilities	38
Increase in other current liabilities	16
Increase in other long-term liabilities	23
Increase in total shareholders' equity	326
Total sources	<u>\$782</u>
<i>Uses</i>	
Increase in cash and cash equivalents	387
Increase in accounts receivable	67
Increase in inventories	57
Increase in net property, plant, and equipment	4
Increase in other assets	24
Decrease in debt due in one year	25
Decrease in long-term debt	218
Total uses	<u>\$782</u>

immediately. The second largest source is an increase in shareholders' equity of \$326 million, the bulk of which comes from profits earned by Polaris during the year. What has Polaris done with this cash? The two biggest uses are \$218 million that has gone to pay down long-term debt, and \$387 million that has been stashed in Polaris's cash account.

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. In the case of Polaris, this should enable you to quickly observe that Polaris used increases in equity and accounts payable primarily to pay down debt and build up its cash account. 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.

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 2020 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.

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 Polaris in 2020 are as follows:

Category	Source (or Use) of Cash (\$ millions)
1. Cash flows from operating activities	\$945
2. Cash flows from investing activities	(\$151)
3. Cash flows from financing activities	(\$407)

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 Polaris in 2020. The first category, “cash flows from operating activities,” can be thought of as a rearrangement of Polaris’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

TABLE 1.5 Polaris Inc. Cash Flow Statement, 2020 (\$ millions)*

Source: Polaris annual report and Compustat

<i>Cash Flows from Operating Activities</i>	
Net income	\$ 414
Adjustments to reconcile net income to net cash provided by operating activities:	
Depreciation and amortization	261
Noncash compensation	65
Other	(100)
Changes in assets and liabilities:	
Accounts receivable	(56)
Inventories	(45)
Accounts payable	327
Other	80
Net cash provided by (used in) operating activities	945
<i>Cash Flows from Investing Activities</i>	
Capital expenditures	(214)
Other investing activities	63
Net cash provided by (used in) investing activities	(151)
<i>Cash Flows from Financing Activities</i>	
Net borrowing (repayment) of long-term debt	(246)
Net issuance (repurchase) of common stock	(17)
Dividends paid	(153)
Other	9
Net cash provided by (used in) financing activities	(407)
Net increase (decrease) in cash	387
Cash at beginning of year	157
Cash at end of year	\$544

*Totals may not add due to rounding.

cash flow statements is that companies reorganize their cash flows into new and sometimes revealing categories. To illustrate, Polaris's cash flow statement in Table 1.5 reveals that during 2020 it paid dividends of \$153 million, repurchased \$17 million of its common stock (net of new stock issued), and invested \$214 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. Polaris's cash flow statement in 2020 indicates that cash flow from operating activities more than doubled Polaris's net income for the year. One reason for the difference is that the income statement includes a \$261 million noncash charge for depreciation. An even larger amount comes from the increase of over \$300 million in accounts payable.

Why Are the Numbers Different?

Polaris's sources and uses statement in Table 1.4 tells us that accounts receivable rose \$67 million in 2020 (a use of cash), yet its cash flow statement in Table 1.5 says that accounts receivable increased \$56 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 uses of cash into investing activities as much as possible, a company enhances its recorded cash generated by operating activities—an appealing outcome. The second answer involves exchange rates. Companies like Polaris have assets and liabilities of various types scattered all over the world. To construct a consolidated balance sheet, accountants translate a 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 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, accountants omit them from the numbers appearing on its cash flow statement.

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

Another noteworthy entry on Polaris's cash flow statement is “noncash compensation,” which contributed \$65 million to cash flow from operations in 2020. After a long and bitter battle among businesses, Congress, and accounting regulators, employee stock options are now, correctly, classified as an expense in the U.S. However, they are not a cash flow, because no cash exchanges hands when a company grants stock options to an employee. 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 if the company doesn't 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.

There is certainly some merit to this view, but it also has 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

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 definitions of cash flow you are likely 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 Polaris's 2020 figures (Table 1.5), its net cash flow was \$640 million, equal to net income plus depreciation, noncash compensation, and other noncash adjustments.

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 Polaris's case, the cash flow statement reveals that changes in a number of current assets and liabilities produced \$306 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.

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

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 measure 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.

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 Polaris's total assets were worth \$4,922 million on December 31, 2020, 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. Polaris's 2020 balance sheet states that the value of shareholders' equity is \$1,434 million. This is known as the *book value* of Polaris's equity. However, Polaris is not worth \$1,434 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 1980, 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 1980 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 1980 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.

To understand the second, more fundamental reason Polaris is not worth \$1,434 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

Adjusted Earnings

For a variety of sometimes legitimate reasons, corporate executives and business analysts often argue that official earnings measures are inadequate, encouraging a whole cottage industry devoted to creating new and improved earnings measures, collectively known as "adjusted earnings." Companies began reporting adjusted earnings regularly in the early 1990s and the practice was 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 to meet earnings targets by sweeping various expenses under the carpet. Initially, companies did not have to disclose how they calculated adjusted earnings, and adjusted earnings came to be known as "earnings before the bad stuff." However, a provision of the Sarbanes–Oxley Act of 2002 required that companies explain the differences between reported adjusted earnings and official net income, and the SEC issued further reporting guidelines in 2016. Managers are still free to be creative in their definition of adjusted earnings, but they at least have to show investors what they are doing.

In recent years, over two-thirds of companies in the S&P 500 have reported adjusted earnings. Common adjustments eliminate one-time items such as restructuring charges, litigation expenses, and acquisitions. Some companies also remove recurring items, such as investment gains or losses and stock compensation. The adjustments usually make companies' earnings look better, not worse. For S&P 500 companies between 2010 to 2015, adjusted earnings were higher than official earnings 78 percent of the time and were 23 percent higher than official earnings, on average. Sometimes the differences are enormous—for 2020, Disney reported an official loss of \$2.8 billion, but also reported an adjusted *profit* of \$3.6 billion.

Why are executives so fond of reporting adjusted earnings? One reason might be to provide investors with cleaner information that is more indicative of future performance. Research in the early 2000s indicated that adjusted earnings were in fact more informative than official earnings, but more recent research suggests that this is no longer the case. Another less-altruistic reason might be that adjusted earnings measures allow executives to receive higher pay. Recent research shows that executives whose bonuses are based on adjusted earnings receive higher bonus compensation, after controlling for other factors. CEOs of companies that make especially large positive adjustments to arrive at adjusted earnings receive bonuses about \$2 million higher than would be expected based on other factors.^a

This is a good opportunity to disclose that I also have dabbled in the adjusted earnings business while presenting Polaris's financial statements for 2020. In my judgment, Polaris's official net income for 2020 of just \$125 million (not shown above) is distorted by an unusual, one-time noncash charge of \$379 million called a *goodwill impairment* (more on this later). To enhance the accuracy of net income as an indicator of future performance, I adjusted Polaris's financial statements to be as if this write-off had not occurred, arriving at adjusted net income of \$414 million, as reported in Table 1.3. Accountants may frown, but this adjustment will make our discussion of Polaris more realistic and productive.

^aFor more details, see Nicholas Guest, S. P. Kothari, and Robert Pozen, "High Non-GAAP Earnings Predict Abnormally High CEO Pay," January 2019; and Asher Curtis, Valerie Li, and Paige Patrick, "The Use of Adjusted Earnings in Performance Evaluation," *Review of Accounting Studies*, 2021.

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 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, 2020, Polaris's common shares closed on the New York Stock Exchange at \$95.28. With 61.9 million shares outstanding, this yields a value of \$5,898 million, or 4.1 times the book value (\$5,898/\$1,434 million). This figure is the market value of Polaris'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 \$30 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.

Looking at Polaris's balance sheet in Table 1.2 under the heading "Goodwill and other intangible assets" we see that the company has \$1,463 million, or 30 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

TABLE 1.6 The Book Value of Equity Is a Poor Surrogate for the Market Value of Equity, December 31, 2020

Company	Value of Equity (\$ millions)		Ratio, Market Value to Book Value
	Book	Market	
Alphabet	222,544	1,182,908	5.3
Amgen	9,409	131,980	14.0
Associated Banc-Corp	3,737	2,595	0.7
Coca-Cola	19,299	233,993	12.1
Delta Air Lines	1,534	25,661	16.7
Duke Energy	46,002	69,687	1.5
Facebook	128,290	778,233	6.1
General Motors	45,030	58,296	1.3
Harley-Davidson	1,723	5,590	3.2
Hasbro	2,897	12,662	4.4
Intel	81,038	201,150	2.5
Petrobras	59,348	141,530	2.4
Polaris	1,434	5,898	4.1
Tesla	22,225	677,443	30.5
Walmart	80,925	404,955	5.0

firms—was 24 percent in 2020. Roper Technologies, a diversified technology company that has acquired dozens of companies over the years, tops the list with a ratio of 90 percent.

For many years, accounting authorities required companies to write off goodwill as a noncash expense over a number of years. Now they acknowledge that most goodwill is not necessarily a wasting asset and only require a write-down when there is evidence that the value of goodwill has declined.¹ This is what happened to Polaris in 2020, when the company decided a recent acquisition was no longer worth what they had paid for it. After performing several economic tests, management determined that the value of its assets should be written down by \$379 million to reflect the decline in value. This goodwill impairment was recorded as an expense on their income statement, severely reducing official net income, even though it was a one-time charge and no cash was involved. As mentioned in the discussion of adjusted earnings above, I have adjusted Polaris's 2020 financial statements reported in this chapter to remove the effects of this transaction.

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

¹There is no offsetting provision requiring the write-up of goodwill when values appear to have risen. If all these rules seem capricious and vague, I agree.

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 Sara Castro'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).

But not the accountant. Unless Sara's investments were in marketable securities with readily observable prices, he would say Sara'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 Sara 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 Sara 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 Sara 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 Sara 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. Polaris's accountants acknowledge that in 2020 the company had use of \$1,434 million of shareholders' money,

measured at book value. They would further acknowledge that Polaris 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 Polaris'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 Polaris 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 Polaris's income statement as prepared by its accountant and as an economist might prepare it. Observe that while the accountant shows earnings of \$414 million, the economist records a profit of only \$271 million. These numbers differ because the economist includes a \$143 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 Polaris's equity [\$143 million = 10% × \$1,434 million].)

(\$ millions)	Accountant	Economist
Operating income	\$592	\$592
Interest expense	67	67
Other nonoperating expenses	4	4
Cost of equity		143
Income before taxes	521	378
Provision for taxes	107	107
Accounting earnings	<u>\$414</u>	
Economic earnings		<u>\$271</u>

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 greater. By this criterion, Polaris still had a decent year in 2020, 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.

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 years, as what optimists might call international accounting standards have become more prevalent. 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 in 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). As of 2021, over 140 countries on six continents have adopted IFRS.

Conspicuously absent from the list of countries mandating IFRS are Japan, China, and the United States. Japan allows voluntary adoption of IFRS and so far over 200 publicly listed firms in Japan have made the switch. China has been working toward making its national accounting standards more compatible with IFRS. The United States has been more stubborn. Despite some initial efforts to move toward international standards, the United States has no current plans to abandon its system of Generally Accepted Accounting Principles (GAAP).

Traditionally, U.S. accounting authorities have 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 made Americans a bit more humble about their accounting rules and a bit more willing to compromise. 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. But U.S. accounting authorities are still reluctant to follow the lead of Europe and adopt IFRS.

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. Nevertheless, at least for the time being, the United States remains the most conspicuous holdout in the efforts for global accounting consistency.
