3 WORKING WITH FINANCIAL STATEMENTS

LEARNING OBJECTIVES

After studying this chapter, you should understand:

- LO1 How to standardize financial statements for comparison purposes.
- LO2 How to compute and, more importantly, interpret some common ratios.
- LO3 The determinants of a firm's profitability.
- LO4 Some of the problems and pitfalls in financial statement analysis.

THE PRICE OF A SHARE OF COMMON STOCK in hotel company Marriott International, Inc. closed at about $36 on April 3, 2008. At that price, Marriott had a price–earnings (PE) ratio of 21. That is, investors were willing to pay $21 for every dollar in income earned by Marriott. At the same time, investors were willing to pay $67, $32, and $12 for each dollar earned by Amazon.com, Apple, and Bank of America, respectively. At the other extreme were XM Satellite Radio and Sirius Satellite Radio, both relative newcomers to the stock market. Each had negative earnings for the previous year, yet XM was priced at about $12 per share and Sirius at about $3 per share. Because they had negative earnings, their PE ratios would have been negative, so they were not reported. At the time, the typical stock in the S&P 500 Index of large company stocks was trading at a PE of about 19, or about 19 times earnings, as they say on Wall Street.

Price-to-earnings comparisons are examples of the use of financial ratios. As we will see in this chapter, there are a wide variety of financial ratios, all designed to summarize specific aspects of a firm's financial position. In addition to discussing how to analyze financial statements and compute financial ratios, we will have quite a bit to say about who uses this information and why.

Master the ability to solve problems in this chapter by using a spreadsheet. Access Excel Master on the student Web site www.mhhe.com/rwj.

In Chapter 2, we discussed some of the essential concepts of financial statements and cash flow. Part 2, this chapter and the next, continues where our earlier discussion left off. Our goal here is to expand your understanding of the uses (and abuses) of financial statement information.

Financial statement information will crop up in various places in the remainder of our book. Part 2 is not essential for understanding this material, but it will help give you an overall perspective on the role of financial statement information in corporate finance.

掌握利用财务报表信息的知识是很重要的，因为这些报表以及从这些报表中推算出来的数据是在企业之内和之外沟通财务信息的主要手段。简而言之，公司理财的很多用语都植根于本章所讨论的观点。

A good working knowledge of financial statements is desirable simply because such statements, and numbers derived from those statements, are the primary means of communicating financial information both within the firm and outside the firm. In short, much of the language of corporate finance is rooted in the ideas we discuss in this chapter.

Furthermore, as we will see, there are many different ways of using financial statement information and many different types of users. This diversity reflects the fact that financial statement information plays an important part in many types of decisions.

In the best of all worlds, the financial manager has full market value information about all of the firm's assets. This will rarely (if ever) happen. So, the reason we rely on accounting figures for much of our financial information is that we are almost always unable to obtain all (or even part) of the market information we want. The only meaningful yardstick for evaluating business decisions is whether they create economic value (see Chapter 1).

However, in many important situations, it will not be possible to make this judgment directly because we can't see the market value effects of decisions.

We recognize that accounting numbers are often just pale reflections of economic reality, but they are frequently the best available information. For privately held corporations, not-for-profit businesses, and smaller firms, for example, very little direct market value information exists at all. The accountant's reporting function is crucial in these circumstances.

Clearly, one important goal of the accountant is to report financial information to the user in a form useful for decision making. Ironically, the information frequently does not come to the user in such a form. In other words, financial statements don't come with a user's guide. This chapter and the next are first steps in filling this gap.

显然，会计人员的一个重要目的就是以有利于决策的形式向使用者报告财务信息。具有讽刺意味的是，这种信息通常并没有以这种形式到达使用者那里。换句话说，财务报表并没有附带使用指南。本章和下一章就是弥合这个差距的首要步骤。

Cash Flow and Financial Statements: A Closer Look

3.1

At the most fundamental level, firms do two different things: They generate cash and they spend it. Cash is generated by selling a product, an asset, or a security. Selling a security involves either borrowing or selling an equity interest (shares of stock) in the firm. Cash is spent in paying for materials and labor to produce a product and in purchasing assets. Payments to creditors and owners also require the spending of cash.

In Chapter 2, we saw that the cash activities of a firm could be summarized by a simple identity:

Cash flow from assets = Cash flow to creditors + Cash flow to owners

This cash flow identity summarizes the total cash result of all transactions a firm engages in during the year. In this section, we return to the subject of cash flow by taking a closer look at the cash events during the year that lead to these total figures.

SOURCES AND USES OF CASH

Activities that bring in cash are called **sources of cash**. Activities that involve spending cash are called **uses** (or applications) **of cash**. What we need to do is to trace the changes in the firm's balance sheet to see how the firm obtained and spent its cash during some period.

带来现金的活动称为现金来源。涉及花费现金的活动称为现金运用。

To get started, consider the balance sheets for the Prufrock Corporation in Table 3.1. Notice that we have calculated the change in each of the items on the balance sheets.

Looking over the balance sheets for Prufrock, we see that quite a few things changed during the year. For example, Prufrock increased its net fixed assets by $149 and its inventory by $29. (Note that, throughout, all figures are in millions of dollars.) Where did the money come from? To answer this and related questions, we need to first identify those changes that used up cash (uses) and those that brought cash in (sources).

A little common sense is useful here. A firm uses cash by either buying assets or making payments. So, loosely speaking, an increase in an asset account means the firm, on a net basis, bought some assets—a use of cash. If an asset account went down, then on a net basis, the firm sold some assets. This would be a net source. Similarly, if a liability account goes down, then the firm has made a net payment—a use of cash.

在这里，有一个简单的常识很有用：企业运用现金要么购买资产，要么进行支付。因此，概而言之，资产账户的增加表明企业购买（从净额的角度讲）了一些资产，是一项现金运用；如果资产账户减少，就说明企业出售（从净额的角度讲）了一些资产，是一项现金来源。同样地，如果负债账户减少，就表明企业进行了净支付，是一项现金运用。

Given this reasoning, there is a simple, albeit mechanical, definition you may find useful. An increase in a left-side (asset) account or a decrease in a right-side (liability or equity) account is a use of cash. Likewise, a decrease in an asset account or an increase in a liability (or equity) account is a source of cash.

TABLE 3.1

PRUFROCK CORPORATION
2008 and 2009 Balance Sheets
($ in millions)

	2008	2009	Change
Assets			
Current assets			
Cash	$ 84	$ 98	+$ 14
Accounts receivable	165	188	+ 23
Inventory	393	422	+ 29
Total	$ 642	$ 708	+$ 66
Fixed assets			
Net plant and equipment	$2,731	$2,880	+$149
Total assets	$3,373	$3,588	+$215
Liabilities and Owners' Equity			
Current liabilities			
Accounts payable	$ 312	$ 344	+$ 32
Notes payable	231	196	− 35
Total	$ 543	$ 540	−$ 3
Long-term debt	$ 531	$ 457	−$ 74
Owners' equity			
Common stock and paid-in surplus	$ 500	$ 550	+$ 50
Retained earnings	1,799	2,041	+ 242
Total	$2,299	$2,591	+$292
Total liabilities and owners' equity	$3,373	$3,588	+$215

Looking again at Prufrock, we see that inventory rose by $29. This is a net use because Prufrock effectively paid out $29 to increase inventories. Accounts payable rose by $32. This is a source of cash because Prufrock effectively has borrowed an additional $32 payable by the end of the year. Notes payable, on the other hand, went down by $35, so Prufrock effectively paid off $35 worth of short-term debt—a use of cash.

Based on our discussion, we can summarize the sources and uses of cash from the balance sheet as follows:

Sources of cash:	
Increase in accounts payable	$ 32
Increase in common stock	50
Increase in retained earnings	242
Total sources	$324
Uses of cash:	
Increase in accounts receivable	$ 23
Increase in inventory	29
Decrease in notes payable	35
Decrease in long-term debt	74
Net fixed asset acquisitions	149
Total uses	$310
Net addition to cash	$ 14

The net addition to cash is just the difference between sources and uses, and our $14 result here agrees with the $14 change shown on the balance sheet.

TABLE 3.2

PRUFROCK CORPORATION 2009 Income Statement ($ in millions)		
Sales		$2,311
Cost of goods sold		1,344
Depreciation		276
Earnings before interest and taxes		$ 691
Interest paid		141
Taxable income		$ 550
Taxes (34%)		187
Net income		$ 363
Dividends	$121	
Addition to retained earnings	242	

This simple statement tells us much of what happened during the year, but it doesn't tell the whole story. For example, the increase in retained earnings is net income (a source of funds) less dividends (a use of funds). It would be more enlightening to have these reported separately so we could see the breakdown. Also, we have considered only net fixed asset acquisitions. Total or gross spending would be more interesting to know.

例如，留存收益的增加是净收益（一项资金来源）扣减股利（一项资金运用）。如果将它们分开报告，我们就能够了解得更细致，那样就会更有意义。而且，我们只考虑了取得固定资产的净值，支出总额或者毛额可能更能引起人们的兴趣。

To further trace the flow of cash through the firm during the year, we need an income statement. For Prufrock, the results for the year are shown in Table 3.2.

Notice here that the $242 addition to retained earnings we calculated from the balance sheet is just the difference between the net income of $363 and the dividends of $121.

THE STATEMENT OF CASH FLOWS

There is some flexibility in summarizing the sources and uses of cash in the form of a financial statement. However it is presented, the result is called the **statement of cash flows**.

在使用财务报表的形式归集现金的来源和运用时，有一些灵活性，不管如何编制，其成果都称为现金流量表。在历史上，这张报表被称做财务状况变动表，而且它是根据净营运资本，而不是根据现金流量的概念来编制的。

We present a particular format for this statement in Table 3.3. The basic idea is to group all the changes into three categories: operating activities, financing activities, and investment activities. The exact form differs in detail from one preparer to the next.

Don't be surprised if you come across different arrangements. The types of information presented will be similar; the exact order can differ. The key thing to remember in this case is that we started out with $84 in cash and ended up with $98, for a net increase of $14. We're just trying to see what events led to this change.

Going back to Chapter 2, we note that there is a slight conceptual problem here. Interest paid should really go under financing activities, but unfortunately that's not the way the accounting is handled. The reason, you may recall, is that interest is deducted as an expense when net income is computed. Also, notice that the net purchase of fixed assets was $149. Because Prufrock wrote off $276 worth of assets (the depreciation), it must have actually spent a total of $149 + 276 = $425 on fixed assets.

Once we have this statement, it might seem appropriate to express the change in cash on a per-share basis, much as we did for net income. Ironically, despite the interest we might have in some measure of cash flow per share, standard accounting practice expressly prohibits reporting this information. The reason is that accountants feel that cash flow (or some component of cash flow) is not an alternative to accounting income, so only earnings per share are to be reported.

As shown in Table 3.4, it is sometimes useful to present the same information a bit differently. We will call this the "sources and uses of cash" statement. There is no such

如表3-4所示，有时利用略有差别的方式来提供同一

TABLE 3.3

PRUFROCK CORPORATION 2009 Statement of Cash Flows ($ in millions)	
Cash, beginning of year	$ 84
Operating activity	
Net income	$363
Plus:	
Depreciation	276
Increase in accounts payable	32
Less:	
Increase in accounts receivable	− 23
Increase in inventory	− 29
Net cash from operating activity	$619
Investment activity	
Fixed asset acquisitions	−$425
Net cash from investment activity	−$425
Financing activity	
Decrease in notes payable	−$ 35
Decrease in long-term debt	− 74
Dividends paid	− 121
Increase in common stock	50
Net cash from financing activity	−$180
Net increase in cash	$ 14
Cash, end of year	$ 98

TABLE 3.4

PRUFROCK CORPORATION 2009 Sources and Uses of Cash ($ in millions)	
Cash, beginning of year	$ 84
Sources of cash	
Operations:	
Net income	$363
Depreciation	276
	$639
Working capital:	
Increase in accounts payable	$ 32
Long-term financing:	
Increase in common stock	50
Total sources of cash	$721
Uses of cash	
Working capital:	
Increase in accounts receivable	$ 23
Increase in inventory	29
Decrease in notes payable	35
Long-term financing:	
Decrease in long-term debt	74
Fixed asset acquisitions	425
Dividends paid	121
Total uses of cash	$707
Net addition to cash	$ 14
Cash, end of year	$ 98

statement in financial accounting, but this arrangement resembles one used many years ago. As we will discuss, this form can come in handy, but we emphasize again that it is not the way this information is normally presented.

信息是很有用的。我们将称之为“现金来源和运用”表。财务会计中并没有这张报表，但是这种安排从很多年以前就开始通行了。正如我们将要讨论的那样，这种格式很方便，但是我们再次强调，现金来源和运用表并不是这种信息的正常表述方式。

Now that we have the various cash pieces in place, we can get a good idea of what happened during the year. Prufrock's major cash outlays were fixed asset acquisitions and cash dividends. It paid for these activities primarily with cash generated from operations.

Prufrock also retired some long-term debt and increased current assets. Finally, current liabilities were not greatly changed, and a relatively small amount of new equity was sold. Altogether, this short sketch captures Prufrock's major sources and uses of cash for the year.

Concept Questions

3.1a What is a source of cash? Give three examples.

3.1b What is a use, or application, of cash? Give three examples.

Standardized Financial Statements 3.2

The next thing we might want to do with Prufrock's financial statements is compare them to those of other similar companies. We would immediately have a problem, however. It's almost impossible to directly compare the financial statements for two companies because of differences in size.

For example, Ford and GM are serious rivals in the auto market, but GM is much larger (in terms of market share), so it is difficult to compare them directly. For that matter, it's difficult even to compare financial statements from different points in time for the same company if the company's size has changed. The size problem is compounded if we try to compare GM and, say, Toyota. If Toyota's financial statements are denominated in yen, then we have size *and* currency differences.

To start making comparisons, one obvious thing we might try to do is to somehow standardize the financial statements. One common and useful way of doing this is to work with percentages instead of total dollars. In this section, we describe two different ways of standardizing financial statements along these lines.

为了进行比较，显然我们所能做出的努力就是采用某种方法使财务报表标准化。一个很普及而有用的方法就是用百分比来替代总金额。

COMMON-SIZE STATEMENTS

To get started, a useful way of standardizing financial statements is to express each item on the balance sheet as a percentage of assets and to express each item on the income statement as a percentage of sales. The resulting financial statements are called **common-size statements**. We consider these next.

使财务报表标准化的方法之一是在资产负债表上用资产的百分比来表示所有项目，而在利润表中用销售的百分比来表示所有项目，所得出的财务报表叫做同比报表。

Common-Size Balance Sheets One way, though not the only way, to construct a common-size balance sheet is to express each item as a percentage of total assets. Prufrock's 2008 and 2009 common-size balance sheets are shown in Table 3.5.

Notice that some of the totals don't check exactly because of rounding. Also notice that the total change has to be zero because the beginning and ending numbers must add up to 100 percent.

In this form, financial statements are relatively easy to read and compare. For example, just looking at the two balance sheets for Prufrock, we see that current assets were 19.7 percent of total assets in 2009, up from 19.1 percent in 2008. Current liabilities declined

TABLE 3.5

PRUFROCK CORPORATION Common-Size Balance Sheets 2008 and 2009	2008	2009	Change
Assets			
Current assets			
Cash	2.5%	2.7%	+ .2%
Accounts receivable	4.9	5.2	+ .3
Inventory	11.7	11.8	+ .1
Total	19.1	19.7	+ .6
Fixed assets			
Net plant and equipment	80.9	80.3	− .6
Total assets	100.0%	100.0%	.0
Liabilities and Owners' Equity			
Current liabilities			
Accounts payable	9.2%	9.6%	+ .4%
Notes payable	6.8	5.5	−1.3
Total	16.0	15.1	− .9
Long-term debt	15.7	12.7	−3.0
Owners' equity			
Common stock and paid-in surplus	14.8	15.3	+ .5
Retained earnings	53.3	56.9	+3.6
Total	68.1	72.2	+4.1
Total liabilities and owners' equity	100.0%	100.0%	.0

from 16.0 percent to 15.1 percent of total liabilities and equity over that same time. Similarly, total equity rose from 68.1 percent of total liabilities and equity to 72.2 percent.

Overall, Prufrock's liquidity, as measured by current assets compared to current liabilities, increased over the year. Simultaneously, Prufrock's indebtedness diminished as a percentage of total assets. We might be tempted to conclude that the balance sheet has grown "stronger." We will say more about this later.

Common-Size Income Statements A useful way of standardizing the income statement is to express each item as a percentage of total sales, as illustrated for Prufrock in Table 3.6.

This income statement tells us what happens to each dollar in sales. For Prufrock, interest expense eats up \$.061 out of every sales dollar and taxes take another \$.081. When all is said and done, \$.157 of each dollar flows through to the bottom line (net income), and that amount is split into \$.105 retained in the business and \$.052 paid out in dividends.

These percentages are useful in comparisons. For example, a relevant figure is the cost percentage. For Prufrock, \$.582 of each \$1 in sales goes to pay for goods sold. It would be interesting to compute the same percentage for Prufrock's main competitors to see how Prufrock stacks up in terms of cost control.

TABLE 3.6

PRUFROCK CORPORATION Common-Size Income Statement 2009		
Sales		100.0%
Cost of goods sold		58.2
Depreciation		11.9
Earnings before interest and taxes		29.9
Interest paid		6.1
Taxable income		23.8
Taxes (34%)		8.1
Net income		15.7%
Dividends	5.2%	
Addition to retained earnings	10.5	

Common-Size Statements of Cash Flows Although we have not presented it here, it is also possible and useful to prepare a common-size statement of cash flows. Unfortunately, with the current statement of cash flows, there is no obvious denominator such as total assets or total sales. However, if the information is arranged in a way similar to that in Table 3.4, then each item can be expressed as a percentage of total sources (or total uses). The results can then be interpreted as the percentage of total sources of cash supplied or as the percentage of total uses of cash for a particular item.

COMMON–BASE YEAR FINANCIAL STATEMENTS: TREND ANALYSIS

Imagine we were given balance sheets for the last 10 years for some company and we were trying to investigate trends in the firm's pattern of operations. Does the firm use more or less debt? Has the firm grown more or less liquid? A useful way of standardizing financial statements in this case is to choose a base year and then express each item relative to the base amount. We will call the resulting statements **common–base year statements**.

使财务报表标准化的一个有用的方法就是选择一个基年，然后采用相对于基年数据的金额来表示每一个项目，我们将所得出的报表称为同基年度报表。

For example, from 2008 to 2009, Prufrock's inventory rose from \$393 to \$422. If we pick 2008 as our base year, then we would set inventory equal to 1.00 for that year. For the next year, we would calculate inventory relative to the base year as \$422/393 = 1.07. In this case, we could say inventory grew by about 7 percent during the year. If we had multiple years, we would just divide the inventory figure for each one by \$393. The resulting series is easy to plot, and it is then easy to compare companies. Table 3.7 summarizes these calculations for the asset side of the balance sheet.

COMBINED COMMON-SIZE AND BASE YEAR ANALYSIS

The trend analysis we have been discussing can be combined with the common-size analysis discussed earlier. The reason for doing this is that as total assets grow, most of the other accounts must grow as well. By first forming the common-size statements, we eliminate the effect of this overall growth.

我们刚刚讨论的趋势分析可以与先前讨论的同比分析结合在一起。这样做的原因在于：随着资产总额的增长，大多数其他账户金额必然也会增长。通过事先构建同比报表，就可以消除总体增长的影响。

For example, looking at Table 3.7, we see that Prufrock's accounts receivable were \$165, or 4.9 percent of total assets, in 2008. In 2009, they had risen to \$188, which was 5.2 percent of total assets. If we do our analysis in terms of dollars, then the 2009 figure would be \$188/165 = 1.14, representing a 14 percent increase in receivables. However, if we work with the common-size statements, then the 2009 figure would be 5.2%/4.9% = 1.06. This tells us accounts receivable, as a percentage of total assets, grew by 6 percent. Roughly speaking, what we see is that of the 14 percent total increase, about 8 percent (= 14% − 6%) is attributable simply to growth in total assets.

TABLE 3.7

PRUFROCK CORPORATION
Summary of Standardized Balance Sheets
(Asset Side Only)

	Assets ($ in millions)		Common-Size Assets		Common–Base Year Assets	Combined Common-Size and Base Year Assets
	2008	2009	2008	2009	2009	2009
Current assets						
Cash	$ 84	$ 98	2.5%	2.7%	1.17	1.08
Accounts receivable	165	188	4.9	5.2	1.14	1.06
Inventory	393	422	11.7	11.8	1.07	1.01
Total current assets	$ 642	$ 708	19.1	19.7	1.10	1.03
Fixed assets						
Net plant and equipment	$2,731	$2,880	80.9	80.3	1.05	.99
Total assets	$3,373	$3,588	100.0%	100.0%	1.06	1.00

NOTE: The common-size numbers are calculated by dividing each item by total assets for that year. For example, the 2008 common-size cash amount is $84/3,373 = 2.5%. The common–base year numbers are calculated by dividing each 2009 item by the base year (2008) dollar amount. The common-base cash is thus $98/84 = 1.17, representing a 17 percent increase. The combined common-size and base year figures are calculated by dividing each common-size amount by the base year (2008) common-size amount. The cash figure is therefore 2.7%/2.5% = 1.08, representing an 8 percent increase in cash holdings as a percentage of total assets. Columns may not total precisely due to rounding.

Concept Questions

3.2a Why is it often necessary to standardize financial statements?

3.2b Name two types of standardized statements and describe how each is formed.

3.3 Ratio Analysis

解决不同规模公司之间的比较问题的另一种方法是计算和比较财务比率。这些比率是比较和考察不同的财务信息之间关系的手段。利用比率之所以能够消除规模问题，是因为规模的影响已经被有效地剔除掉了。这样，我们就只剩下百分比、除数或者时期了。

Another way of avoiding the problems involved in comparing companies of different sizes is to calculate and compare **financial ratios**. Such ratios are ways of comparing and investigating the relationships between different pieces of financial information. Using ratios eliminates the size problem because the size effectively divides out. We're then left with percentages, multiples, or time periods.

There is a problem in discussing financial ratios. Because a ratio is simply one number divided by another, and because there are so many accounting numbers out there, we could examine a huge number of possible ratios. Everybody has a favorite. We will restrict ourselves to a representative sampling.

In this section, we only want to introduce you to some commonly used financial ratios. These are not necessarily the ones we think are the best. In fact, some of them may strike you as illogical or not as useful as some alternatives. If they do, don't be concerned. As a financial analyst, you can always decide how to compute your own ratios.

What you do need to worry about is the fact that different people and different sources seldom compute these ratios in exactly the same way, and this leads to much confusion. The specific definitions we use here may or may not be the same as ones you have seen or will see elsewhere. If you are ever using ratios as a tool for analysis, you should be careful to document how you calculate each one; and if you are comparing your numbers to numbers from another source, be sure you know how those numbers are computed.

We will defer much of our discussion of how ratios are used and some problems that come up with using them until later in the chapter. For now, for each of the ratios we discuss, we consider several questions:

1. How is it computed?
2. What is it intended to measure, and why might we be interested?
3. What is the unit of measurement?
4. What might a high or low value tell us? How might such values be misleading?
5. How could this measure be improved?

Financial ratios are traditionally grouped into the following categories:

1. Short-term solvency, or liquidity, ratios.
2. Long-term solvency, or financial leverage, ratios.
3. Asset management, or turnover, ratios.
4. Profitability ratios.
5. Market value ratios.

We will consider each of these in turn. In calculating these numbers for Prufrock, we will use the ending balance sheet (2009) figures unless we say otherwise. Also notice that the various ratios are color keyed to indicate which numbers come from the income statement and which come from the balance sheet.

我们针对所讨论的每一个比率，来考虑以下几个问题：
1. 它是如何计算出来的？
2. 它是用来计量什么的？为什么我们会对这方面感兴趣？
3. 计量的单位是什么？
4. 比率数值的高低说明的是什么含义？这些数值可能会产生哪些误导？
5. 怎样才能改进这些计量指标？

按照传统的分类方法，财务比率可以分为以下几种类型：
1. 短期偿债能力比率，或流动性比率；
2. 长期偿债能力比率，或财务杠杆比率；
3. 资产营运比率，或周转率；
4. 获利能力比率；
5. 市场价值比率。

SHORT-TERM SOLVENCY, OR LIQUIDITY, MEASURES

As the name suggests, short-term solvency ratios as a group are intended to provide information about a firm's liquidity, and these ratios are sometimes called *liquidity measures*. The primary concern is the firm's ability to pay its bills over the short run without undue stress. Consequently, these ratios focus on current assets and current liabilities.

For obvious reasons, liquidity ratios are particularly interesting to short-term creditors. Because financial managers work constantly with banks and other short-term lenders, an understanding of these ratios is essential.

One advantage of looking at current assets and liabilities is that their book values and market values are likely to be similar. Often (though not always), these assets and liabilities just don't live long enough for the two to get seriously out of step. On the other hand, like any type of near-cash, current assets and liabilities can and do change fairly rapidly, so today's amounts may not be a reliable guide to the future.

Current Ratio One of the best known and most widely used ratios is the *current ratio*. As you might guess, the current ratio is defined as follows:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} \qquad [3.1]$$

Here is Prufrock's 2009 current ratio:

$$\text{Current ratio} = \frac{\$708}{\$540} = 1.31 \text{ times}$$

Because current assets and liabilities are, in principle, converted to cash over the following 12 months, the current ratio is a measure of short-term liquidity. The unit of measurement is either dollars or times. So, we could say Prufrock has \$1.31 in current assets for every \$1 in current liabilities, or we could say Prufrock has its current liabilities covered 1.31 times over.

因为流动资产和负债原则上会在未来12个月内转换成现金，因此流动比率是短期流动性的一个计量指标。计量的单位可以是货币单位，也可以是倍数。

To a creditor—particularly a short-term creditor such as a supplier—the higher the current ratio, the better. To the firm, a high current ratio indicates liquidity, but it also may indicate an inefficient use of cash and other short-term assets. Absent some extraordinary circumstances, we would expect to see a current ratio of at least 1 because a current ratio of less than 1 would mean that net working capital (current assets less current liabilities) is negative. This would be unusual in a healthy firm, at least for most types of businesses.

The current ratio, like any ratio, is affected by various types of transactions. For example, suppose the firm borrows over the long term to raise money. The short-run effect would be an increase in cash from the issue proceeds and an increase in long-term debt. Current liabilities would not be affected, so the current ratio would rise.

最后请注意，一个明显很低的流动比率对于一家保持较大的未使用的举债能力的公司而言，也许并不是一件坏事。

Finally, note that an apparently low current ratio may not be a bad sign for a company with a large reserve of untapped borrowing power.

EXAMPLE 3.1 Current Events

Suppose a firm pays off some of its suppliers and short-term creditors. What happens to the current ratio? Suppose a firm buys some inventory. What happens in this case? What happens if a firm sells some merchandise?

The first case is a trick question. What happens is that the current ratio moves away from 1. If it is greater than 1 (the usual case), it will get bigger; but if it is less than 1, it will get smaller. To see this, suppose the firm has \$4 in current assets and \$2 in current liabilities for a current ratio of 2. If we use \$1 in cash to reduce current liabilities, then the new current ratio is (\$4 − 1)/(\$2 − 1) = 3. If we reverse the original situation to \$2 in current assets and \$4 in current liabilities, then the change will cause the current ratio to fall to 1/3 from 1/2.

The second case is not quite as tricky. Nothing happens to the current ratio because cash goes down while inventory goes up—total current assets are unaffected.

In the third case, the current ratio will usually rise because inventory is normally shown at cost and the sale will normally be at something greater than cost (the difference is the markup). The increase in either cash or receivables is therefore greater than the decrease in inventory. This increases current assets, and the current ratio rises.

存货通常是流动性最弱的流动资产。它还是账面价值最难以准确地反映市场价值的项目之一，因为并没有考虑到存货的质量。一些存货可能会被损坏、废弃或者丢失。

The Quick (or Acid-Test) Ratio Inventory is often the least liquid current asset. It's also the one for which the book values are least reliable as measures of market value because the quality of the inventory isn't considered. Some of the inventory may later turn out to be damaged, obsolete, or lost.

More to the point, relatively large inventories are often a sign of short-term trouble. The firm may have overestimated sales and overbought or overproduced as a result. In this case, the firm may have a substantial portion of its liquidity tied up in slow-moving inventory.

To further evaluate liquidity, the *quick,* or *acid-test, ratio* is computed just like the current ratio, except inventory is omitted:

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}} \tag{3.2}$$

用现金购买存货不会影响流动比率，但是会降低速动比率。

Notice that using cash to buy inventory does not affect the current ratio, but it reduces the quick ratio. Again, the idea is that inventory is relatively illiquid compared to cash.

For Prufrock, this ratio for 2009 was:

$$\text{Quick ratio} = \frac{\$708 - 422}{\$540} = .53 \text{ times}$$

The quick ratio here tells a somewhat different story than the current ratio because inventory accounts for more than half of Prufrock's current assets. To exaggerate the point, if this inventory consisted of, say, unsold nuclear power plants, then this would be a cause for concern.

To give an example of current versus quick ratios, based on recent financial statements, Wal-Mart and Manpower Inc. had current ratios of .81 and 1.60, respectively. However, Manpower carries no inventory to speak of, whereas Wal-Mart's current assets are virtually all inventory. As a result, Wal-Mart's quick ratio was only .21, whereas Manpower's was 1.60, the same as its current ratio.

Other Liquidity Ratios We briefly mention three other measures of liquidity. A very short-term creditor might be interested in the *cash ratio:*

$$\text{Cash ratio} = \frac{\text{Cash}}{\text{Current liabilities}} \tag{3.3}$$

You can verify that for 2009 this works out to be .18 times for Prufrock.

Because net working capital, or NWC, is frequently viewed as the amount of short-term liquidity a firm has, we can consider the ratio of *NWC to total assets:*

$$\text{Net working capital to total assets} = \frac{\text{Net working capital}}{\text{Total assets}} \tag{3.4}$$

由于净营运资本（NWC）经常被看做是企业所拥有的短期流动性的数额，我们可以考察NWC对资产总额的比率：

$$\text{净营运资本对资产总额的比率} = \frac{\text{净营运资本}}{\text{资产总额}}$$

A relatively low value might indicate relatively low levels of liquidity. Here, this ratio works out to be ($708 − 540)/$3,588 = 4.7%.

这个比率的数值较低可能意味着流动性程度相对较低。

Finally, imagine that Prufrock was facing a strike and cash inflows began to dry up. How long could the business keep running? One answer is given by the *interval measure:*

$$\text{Interval measure} = \frac{\text{Current assets}}{\text{Average daily operating costs}} \tag{3.5}$$

Total costs for the year, excluding depreciation and interest, were $1,344. The average daily cost was $1,344/365 = $3.68 per day.[1] The interval measure is thus $708/$3.68 = 192 days. Based on this, Prufrock could hang on for six months or so.[2]

The interval measure (or something similar) is also useful for newly founded or start-up companies that often have little in the way of revenues. For such companies, the interval measure indicates how long the company can operate until it needs another round of financing. The average daily operating cost for start-up companies is often called the burn rate, meaning the rate at which cash is burned in the race to become profitable.

LONG-TERM SOLVENCY MEASURES

Long-term solvency ratios are intended to address the firm's long-term ability to meet its obligations, or, more generally, its financial leverage. These are sometimes called *financial leverage ratios* or just *leverage ratios*. We consider three commonly used measures and some variations.

长期偿债能力比率试图揭示企业在长期内偿还其债务的能力，或者更一般地讲，是在长期内应付其财务杠杆的能力。它们有时被称为财务杠杆比率，或者干脆叫做杠杆比率。

Total Debt Ratio The *total debt ratio* takes into account all debts of all maturities to all creditors. It can be defined in several ways, the easiest of which is this:

$$\begin{aligned} \text{Total debt ratio} &= \frac{\text{Total assets} - \text{Total equity}}{\text{Total assets}} \\ &= \frac{\$3{,}588 - 2{,}591}{\$3{,}588} = .28 \text{ times} \end{aligned} \tag{3.6}$$

[1]For many of these ratios that involve average daily amounts, a 360-day year is often used in practice. This so-called banker's year has exactly four quarters of 90 days each and was computationally convenient in the days before pocket calculators. We'll use 365 days.

[2]Sometimes depreciation and/or interest is included in calculating average daily costs. Depreciation isn't a cash expense, so its inclusion doesn't make a lot of sense. Interest is a financing cost, so we excluded it by definition (we looked at only operating costs). We could, of course, define a different ratio that included interest expense.

In this case, an analyst might say that Prufrock uses 28 percent debt.[3] Whether this is high or low or whether it even makes any difference depends on whether capital structure matters, a subject we discuss in Part 6.

Prufrock has \$.28 in debt for every \$1 in assets. Therefore, there is \$.72 in equity (\$1 − .28) for every \$.28 in debt. With this in mind, we can define two useful variations on the total debt ratio—the *debt–equity ratio* and the *equity multiplier:*

$$\begin{aligned}\text{Debt–equity ratio} &= \text{Total debt}/\text{Total equity} \\ &= \$.28/\$.72 = .39 \text{ times}\end{aligned} \quad [3.7]$$

$$\begin{aligned}\text{Equity multiplier} &= \text{Total assets}/\text{Total equity} \\ &= \$1/\$.72 = 1.39 \text{ times}\end{aligned} \quad [3.8]$$

The fact that the equity multiplier is 1 plus the debt–equity ratio is not a coincidence:

$$\begin{aligned}\text{Equity multiplier} &= \text{Total assets}/\text{Total equity} = \$1/\$.72 = 1.39 \\ &= (\text{Total equity} + \text{Total debt})/\text{Total equity} \\ &= 1 + \text{Debt–equity ratio} = 1.39 \text{ times}\end{aligned}$$

The thing to notice here is that given any one of these three ratios, you can immediately calculate the other two; so, they all say exactly the same thing.

比起短期债务来，财务分析人员通常更加关注企业的长期债务，这是因为短期债务会不断地变动。

A Brief Digression: Total Capitalization versus Total Assets Frequently, financial analysts are more concerned with a firm's long-term debt than its short-term debt because the short-term debt will constantly be changing. Also, a firm's accounts payable may reflect trade practice more than debt management policy. For these reasons, the *long-term debt ratio* is often calculated as follows:

$$\begin{aligned}\text{Long-term debt ratio} &= \frac{\text{Long-term debt}}{\text{Long-term debt} + \text{Total equity}} \\ &= \frac{\$457}{\$457 + 2{,}591} = \frac{\$457}{\$3{,}048} = .15 \text{ times}\end{aligned} \quad [3.9]$$

The \$3,048 in total long-term debt and equity is sometimes called the firm's *total capitalization,* and the financial manager will frequently focus on this quantity rather than on total assets.

对于债务比率这个术语，不同的人（以及在不同的书中）有不同的理解。有的指总负债率，有的仅指长期负债率。并且，不幸的是，大量的数据都是含混不清的，根本不知道它们指的是什么。

To complicate matters, different people (and different books) mean different things by the term *debt ratio*. Some mean a ratio of total debt, and some mean a ratio of long-term debt only, and, unfortunately, a substantial number are simply vague about which one they mean.

This is a source of confusion, so we choose to give two separate names to the two measures. The same problem comes up in discussing the debt–equity ratio. Financial analysts frequently calculate this ratio using only long-term debt.

长期偿债能力的另外一个计量指标是利息保障倍数（TIE）比率。

Times Interest Earned Another common measure of long-term solvency is the *times interest earned* (TIE) *ratio*. Once again, there are several possible (and common) definitions, but we'll stick with the most traditional:

$$\begin{aligned}\text{Times interest earned ratio} &= \frac{\text{EBIT}}{\text{Interest}} \\ &= \frac{\$691}{\$141} = 4.9 \text{ times}\end{aligned} \quad [3.10]$$

[3]Total equity here includes preferred stock (discussed in Chapter 8 and elsewhere), if there is any. An equivalent numerator in this ratio would be Current liabilities + Long-term debt.

As the name suggests, this ratio measures how well a company has its interest obligations covered, and it is often called the *interest coverage ratio*. For Prufrock, the interest bill is covered 4.9 times over.

Cash Coverage A problem with the TIE ratio is that it is based on EBIT, which is not really a measure of cash available to pay interest. The reason is that depreciation, a noncash expense, has been deducted out. Because interest is definitely a cash outflow (to creditors), one way to define the *cash coverage ratio* is this:

$$\text{Cash coverage ratio} = \frac{\text{EBIT} + \text{Depreciation}}{\text{Interest}} = \frac{\$691 + 276}{\$141} = \frac{\$967}{\$141} = 6.9 \text{ times} \quad [3.11]$$

The numerator here, EBIT plus depreciation, is often abbreviated EBITD (earnings before interest, taxes, and depreciation—say "ebbit-dee"). It is a basic measure of the firm's ability to generate cash from operations, and it is frequently used as a measure of cash flow available to meet financial obligations.

A common variation on EBITD is earnings before interest, taxes, depreciation, and amortization (EBITDA—say "ebbit-dah"). Here *amortization* refers to a noncash deduction similar conceptually to depreciation, except it applies to an intangible asset (such as a patent) rather than a tangible asset (such as machine). Note that the word *amortization* here does not refer to the repayment of debt, a subject we discuss in a later chapter.

ASSET MANAGEMENT, OR TURNOVER, MEASURES

We next turn our attention to the efficiency with which Prufrock uses its assets. The measures in this section are sometimes called *asset utilization ratios*. The specific ratios we discuss can all be interpreted as measures of turnover. What they are intended to describe is how efficiently or intensively a firm uses its assets to generate sales. We first look at two important current assets: inventory and receivables.

本部分介绍的计量指标有时被称做资产利用比率。

Inventory Turnover and Days' Sales in Inventory During the year, Prufrock had a cost of goods sold of $1,344. Inventory at the end of the year was $422. With these numbers, *inventory turnover* can be calculated as follows:

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventory}} = \frac{\$1{,}344}{\$422} = 3.2 \text{ times} \quad [3.12]$$

In a sense, Prufrock sold off or turned over the entire inventory 3.2 times.[4] As long as we are not running out of stock and thereby forgoing sales, the higher this ratio is, the more efficiently we are managing inventory.

If we know we turned our inventory over 3.2 times during the year, we can immediately figure out how long it took us to turn it over on average. The result is the average *days' sales in inventory:*

如果已知我们在该年度将存货周转了3.2次，那么我们很快就会计算出我们使存货周转一次平均要花多长时间。

$$\text{Days' sales in inventory} = \frac{365 \text{ days}}{\text{Inventory turnover}} = \frac{365 \text{ days}}{3.2} = 114 \text{ days} \quad [3.13]$$

[4]Notice that we used cost of goods sold in the top of this ratio. For some purposes, it might be more useful to use sales instead of costs. For example, if we wanted to know the amount of sales generated per dollar of inventory, we could just replace the cost of goods sold with sales.

This tells us that, roughly speaking, inventory sits 114 days on average before it is sold. Alternatively, assuming we have used the most recent inventory and cost figures, it will take about 114 days to work off our current inventory.

For example, in February 2008, General Motors had a 153-day supply of its Chevrolet Silverado, more than the 60-day supply considered normal. This figure means that at the then-current rate of sales, it would have taken General Motors 153 days to deplete the available supply, or, equivalently, that General Motors had 153 days of Silverado sales in inventory. General Motors also had a 152-day supply of the GMC Sierra and a 164-day supply of the GMC Yukon. While these figures look very high (and they are), they also show why you should not look at any ratio in isolation. The reason that General Motors had such a large inventory was an expected strike at supplier American Axle & Manufacturing Holdings. General Motors wanted the excess inventory because it would be unable to produce any of these SUVs without the critical parts supplied by American Axle. By the end of March 2008, General Motors had temporarily closed two plants and had over 17,000 workers idled because of the strike at its supplier.

在计算周转率时，采用平均存货可能更有意义。这样存货周转率就会是：1 344/[(393 + 422)/2] = 3.3次。它其实取决于计算的目的。

It might make more sense to use the average inventory in calculating turnover. Inventory turnover would then be $1,344/[($393 + 422)/2] = 3.3 times.[5] It depends on the purpose of the calculation. If we are interested in how long it will take us to sell our current inventory, then using the ending figure (as we did initially) is probably better.

在报告行业平均情况时，采用期末数据是非常普遍的；因此，为了进行比较，在这种情况下应该采用期末数据。

In many of the ratios we discuss in this chapter, average figures could just as well be used. Again, it depends on whether we are worried about the past, in which case averages are appropriate, or the future, in which case ending figures might be better. Also, using ending figures is common in reporting industry averages; so, for comparison purposes, ending figures should be used in such cases. In any event, using ending figures is definitely less work, so we'll continue to use them.

存货计量指标提供了一些关于产品可以卖得多快的情况。我们现在来看看我们能够多快地收回这些销售收入。应收账款周转率与存货周转率的界定方法是一样的：

$$\text{应收账款周转率} = \frac{\text{销售收入}}{\text{应收账款}}$$

Receivables Turnover and Days' Sales in Receivables Our inventory measures give some indication of how fast we can sell product. We now look at how fast we collect on those sales. The *receivables turnover* is defined much like inventory turnover:

$$\begin{aligned}\text{Receivables turnover} &= \frac{\text{Sales}}{\text{Accounts receivable}} \\ &= \frac{\$2{,}311}{\$188} = 12.3 \text{ times}\end{aligned} \tag{3.14}$$

Loosely speaking, Prufrock collected its outstanding credit accounts and reloaned the money 12.3 times during the year.[6]

This ratio makes more sense if we convert it to days, so here is the *days' sales in receivables:*

$$\begin{aligned}\text{Days' sales in receivables} &= \frac{365 \text{ days}}{\text{Receivables turnover}} \\ &= \frac{365}{12.3} = 30 \text{ days}\end{aligned} \tag{3.15}$$

Prufrock公司收回赊账销售收入的时间为30天。由于显而易见的原因，这个比率通常被称做平均回收期（ACP）。

Therefore, on average, Prufrock collects on its credit sales in 30 days. For obvious reasons, this ratio is frequently called the *average collection period* (ACP).

Note that if we are using the most recent figures, we could also say that we have 30 days' worth of sales currently uncollected. We will learn more about this subject when we study credit policy in a later chapter.

[5] Notice that we calculated the average as (Beginning value + Ending value)/2.

[6] Here we have implicitly assumed that all sales are credit sales. If they were not, we would simply use total credit sales in these calculations, not total sales.

Payables Turnover

EXAMPLE 3.2

Here is a variation on the receivables collection period. How long, on average, does it take for Prufrock Corporation to pay its bills? To answer, we need to calculate the accounts payable turnover rate using cost of goods sold. We will assume that Prufrock purchases everything on credit.

The cost of goods sold is $1,344, and accounts payable are $344. The turnover is therefore $1,344/$344 = 3.9 times. So, payables turned over about every 365/3.9 = 94 days. On average, then, Prufrock takes 94 days to pay. As a potential creditor, we might take note of this fact.

Asset Turnover Ratios Moving away from specific accounts like inventory or receivables, we can consider several "big picture" ratios. For example, *NWC turnover* is:

$$\text{NWC turnover} = \frac{\text{Sales}}{\text{NWC}} = \frac{\$2{,}311}{\$708 - 540} = 13.8 \text{ times} \qquad [3.16]$$

This ratio measures how much "work" we get out of our working capital. Once again, assuming we aren't missing out on sales, a high value is preferred. (Why?)

Similarly, *fixed asset turnover* is:

$$\text{Fixed asset turnover} = \frac{\text{Sales}}{\text{Net fixed assets}} = \frac{\$2{,}311}{\$2{,}880} = .80 \text{ times} \qquad [3.17]$$

With this ratio, it probably makes more sense to say that for every dollar in fixed assets, Prufrock generated $.80 in sales.

Our final asset management ratio, the *total asset turnover,* comes up quite a bit. We will see it later in this chapter and in the next chapter. As the name suggests, the total asset turnover is:

$$\text{Total asset turnover} = \frac{\text{Sales}}{\text{Total assets}} = \frac{\$2{,}311}{\$3{,}588} = .64 \text{ times} \qquad [3.18]$$

$$总资产周转率 = \frac{销售收入}{资产总额}$$

In other words, for every dollar in assets, Prufrock generated $.64 in sales.

To give an example of fixed and total asset turnover, based on recent financial statements, Southwest Airlines had a total asset turnover of .59, compared to .82 for IBM. However, the much higher investment in fixed assets in an airline is reflected in Southwest's fixed asset turnover of .80, compared to IBM's 1.46.

More Turnover

EXAMPLE 3.3

Suppose you find that a particular company generates $.40 in sales for every dollar in total assets. How often does this company turn over its total assets?

The total asset turnover here is .40 times per year. It takes 1/.40 = 2.5 years to turn total assets over completely.

PROFITABILITY MEASURES

The three measures we discuss in this section are probably the best known and most widely used of all financial ratios. In one form or another, they are intended to measure how efficiently a firm uses its assets and manages its operations. The focus in this group is on the bottom line, net income.

Profit Margin Companies pay a great deal of attention to their *profit margins:*

$$\text{Profit margin} = \frac{\text{Net income}}{\text{Sales}} = \frac{\$363}{\$2{,}311} = 15.7\% \qquad [3.19]$$

This tells us that Prufrock, in an accounting sense, generates a little less than 16 cents in profit for every dollar in sales.

All other things being equal, a relatively high profit margin is obviously desirable. This situation corresponds to low expense ratios relative to sales. However, we hasten to add that other things are often not equal.

例如，降低销售价格一般会提高销售量，但是通常就会导致利润率缩水。利润总额（或者，更为重要的是，经营现金流量）可能会上升或者下降，因此利润率较小并不一定就是一件坏事情。

For example, lowering our sales price will usually increase unit volume but will normally cause profit margins to shrink. Total profit (or, more important, operating cash flow) may go up or down; so the fact that margins are smaller isn't necessarily bad. After all, isn't it possible that, as the saying goes, "Our prices are so low that we lose money on everything we sell, but we make it up in volume"?[7]

资产报酬率（ROA）计量的是每1美元资产所带来的利润。

Return on Assets *Return on assets* (ROA) is a measure of profit per dollar of assets. It can be defined several ways, but the most common is this:

$$\text{Return on assets} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\$363}{\$3{,}588} = 10.12\% \qquad [3.20]$$

权益报酬率（ROE）计量的是一年中股东的回报。因为使股东获利是我们的目的，所以从会计的角度看，ROE是业绩计量的真正底线。

Return on Equity *Return on equity* (ROE) is a measure of how the stockholders fared during the year. Because benefiting shareholders is our goal, ROE is, in an accounting sense, the true bottom-line measure of performance. ROE is usually measured as follows:

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Total equity}} = \frac{\$363}{\$2{,}591} = 14\% \qquad [3.21]$$

For every dollar in equity, therefore, Prufrock generated 14 cents in profit; but again this is correct only in accounting terms.

Because ROA and ROE are such commonly cited numbers, we stress that it is important to remember they are accounting rates of return. For this reason, these measures should properly be called *return on book assets* and *return on book equity*. In fact, ROE is sometimes called *return on net worth*. Whatever it's called, it would be inappropriate to compare the result to, for example, an interest rate observed in the financial markets. We will have more to say about accounting rates of return in later chapters.

The fact that ROE exceeds ROA reflects Prufrock's use of financial leverage. We will examine the relationship between these two measures in more detail next.

EXAMPLE 3.4 ROE and ROA

由于ROE和ROA通常都是试图计量过去一段时间的业绩，因而分别根据权益平均数和资产平均数来计算是有一定的意义的。对于Prufrock公司来说，你该怎么计算呢？

Because ROE and ROA are usually intended to measure performance over a prior period, it makes a certain amount of sense to base them on average equity and average assets, respectively. For Prufrock, how would you calculate these?

continued

[7]No, it's not.

We first need to calculate average assets and average equity:

Average assets = (\$3,373 + 3,588)/2 = \$3,481
Average equity = (\$2,299 + 2,591)/2 = \$2,445

With these averages, we can recalculate ROA and ROE as follows:

$$\text{ROA} = \frac{\$363}{\$3,481} = 10.43\%$$

$$\text{ROE} = \frac{\$363}{\$2,445} = 14.85\%$$

These are slightly higher than our previous calculations because assets and equity grew during the year, with the result that the average is below the ending value.

MARKET VALUE MEASURES

Our final group of measures is based, in part, on information not necessarily contained in financial statements—the market price per share of stock. Obviously, these measures can be calculated directly only for publicly traded companies.

We assume that Prufrock has 33 million shares outstanding and the stock sold for \$88 per share at the end of the year. If we recall that Prufrock's net income was \$363 million, we can calculate its earnings per share:

$$\text{EPS} = \frac{\text{Net income}}{\text{Shares outstanding}} = \frac{\$363}{33} = \$11$$

Price–Earnings Ratio The first of our market value measures, the *price–earnings* (PE) *ratio* (or multiple), is defined here:

我们的第一个市场价值计量指标市价 - 盈余（PE）比率（或乘数）的定义为：

$$\text{PE ratio} = \frac{\text{Price per share}}{\text{Earnings per share}} \tag{3.22}$$

$$= \frac{\$88}{\$11} = 8 \text{ times}$$

$$市价 - 盈余比率 = \frac{每股价格}{\text{EPS}}$$

In the vernacular, we would say that Prufrock shares sell for eight times earnings, or we might say that Prufrock shares have or "carry" a PE multiple of 8.

PE ratios vary substantially across companies, but, in 2009, a typical large company in the United States had a PE in the 15–20 range. This is on the high side by historical standards, but not dramatically so. A low point for PEs was about 5 in 1974. PEs also vary across countries. For example, Japanese PEs have historically been much higher than those of their U.S. counterparts.

Because the PE ratio measures how much investors are willing to pay per dollar of current earnings, higher PEs are often taken to mean the firm has significant prospects for future growth. Of course, if a firm had no or almost no earnings, its PE would probably be quite large; so, as always, care is needed in interpreting this ratio.

Sometimes analysts divide PE ratios by expected future earnings growth rates (after multiplying the growth rate by 100). The result is the PEG ratio. Suppose Prufrock's anticipated growth rate in EPS was 6 percent. Its PEG ratio would then be 8/6 = 1.33. The idea behind the PEG ratio is that whether a PE ratio is high or low depends on expected future growth. High PEG ratios suggest that the PE is too high relative to growth, and vice versa.

Price–Sales Ratio In some cases, companies will have negative earnings for extended periods, so their PE ratios are not very meaningful. A good example is a recent start-up. Such companies usually do have some revenues, so analysts will often look at the *price–sales ratio:*

第二个经常提到的市场价值计量指标是市价 - 账面价值比率（有时也可简称为“市账率”或“市净率”。——译者注）：

Price–sales ratio = Price per share/Sales per share

市价-账面价值比率 = 每股市价 / 每股账面价值

请注意每股账面价值是用权益总额（并不仅仅是普通股）除以发行在外的股份数量。

In Prufrock's case, sales were \$2,311, so here is the price–sales ratio:

$$\text{Price–sales ratio} = \$88/(\$2{,}311/33) = \$88/\$70 = 1.26$$

As with PE ratios, whether a particular price–sales ratio is high or low depends on the industry involved.

Market-to-Book Ratio A second commonly quoted market value measure is the *market-to-book ratio:*

$$\begin{aligned}\text{Market-to-book ratio} &= \frac{\text{Market value per share}}{\text{Book value per share}} \\ &= \frac{\$88}{(\$2{,}591/33)} = \frac{\$88}{\$78.5} = 1.12 \text{ times}\end{aligned} \quad [3.23]$$

Notice that book value per share is total equity (not just common stock) divided by the number of shares outstanding.

Because book value per share is an accounting number, it reflects historical costs. In a loose sense, the market-to-book ratio therefore compares the market value of the firm's investments to their cost. A value less than 1 could mean that the firm has not been successful overall in creating value for its stockholders.

Market-to-book ratios in recent years appear high relative to past values. For example, for the 30 blue-chip companies that make up the widely followed Dow-Jones Industrial Average, the historical norm is about 1.7; however, the market-to-book ratio for this group has recently been twice this size.

Another ratio, called *Tobin's Q ratio,* is much like the market-to-book ratio. Tobin's Q is the market value of the firm's assets divided by their replacement cost:

$$\begin{aligned}\text{Tobin's Q} &= \text{Market value of firm's assets/Replacement cost of firm's assets} \\ &= \text{Market value of firm's debt and equity/Replacement cost of firm's assets}\end{aligned}$$

Notice that we used two equivalent numerators here: the market value of the firm's assets and the market value of its debt and equity.

Conceptually, the Q ratio is superior to the market-to-book ratio because it focuses on what the firm is worth today relative to what it would cost to replace it today. Firms with high Q ratios tend to be those with attractive investment opportunities or significant competitive advantages (or both). In contrast, the market-to-book ratio focuses on historical costs, which are less relevant.

As a practical matter, however, Q ratios are difficult to calculate with accuracy because estimating the replacement cost of a firm's assets is not an easy task. Also, market values for a firm's debt are often unobservable. Book values can be used instead in such cases, but accuracy may suffer.

CONCLUSION

This completes our definitions of some common ratios. We could tell you about more of them, but these are enough for now. We'll go on to discuss some ways of using these ratios instead of just how to calculate them. Table 3.8 summarizes the ratios we've discussed.

Concept Questions

3.3a What are the five groups of ratios? Give two or three examples of each kind.

3.3b Given the total debt ratio, what other two ratios can be computed? Explain how.

3.3c Turnover ratios all have one of two figures as the numerator. What are these two figures? What do these ratios measure? How do you interpret the results?

3.3d Profitability ratios all have the same figure in the numerator. What is it? What do these ratios measure? How do you interpret the results?

TABLE 3.8 Common Financial Ratios

I. Short-term solvency, or liquidity, ratios	**II. Long-term solvency, or financial leverage, ratios**
Current ratio $= \frac{\text{Current assets}}{\text{Current liabilities}}$	Total debt ratio $= \frac{\text{Total assets} - \text{Total equity}}{\text{Total assets}}$
Quick ratio $= \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$	Debt–equity ratio = Total debt/Total equity
Cash ratio $= \frac{\text{Cash}}{\text{Current liabilities}}$	Equity multiplier = Total assets/Total equity
Net working capital to total assets $= \frac{\text{Net working capital}}{\text{Total assets}}$	Long-term debt ratio $= \frac{\text{Long-term debt}}{\text{Long-term debt} + \text{Total equity}}$
Interval measure $= \frac{\text{Current assets}}{\text{Average daily operating costs}}$	Times interest earned ratio $= \frac{\text{EBIT}}{\text{Interest}}$
	Cash coverage ratio $= \frac{\text{EBIT} + \text{Depreciation}}{\text{Interest}}$
III. Asset management, or turnover, ratios	**IV. Profitability ratios**
Inventory turnover $= \frac{\text{Cost of goods sold}}{\text{Inventory}}$	Profit margin $= \frac{\text{Net income}}{\text{Sales}}$
Days' sales in inventory $= \frac{\text{365 days}}{\text{Inventory turnover}}$	Return on assets (ROA) $= \frac{\text{Net income}}{\text{Total assets}}$
Receivables turnover $= \frac{\text{Sales}}{\text{Accounts receivable}}$	Return on equity (ROE) $= \frac{\text{Net income}}{\text{Total equity}}$
Days' sales in receivables $= \frac{\text{365 days}}{\text{Receivables turnover}}$	ROE $= \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$
NWC turnover $= \frac{\text{Sales}}{\text{NWC}}$	**V. Market value ratios**
Fixed asset turnover $= \frac{\text{Sales}}{\text{Net fixed assets}}$	Price–earnings ratio $= \frac{\text{Price per share}}{\text{Earnings per share}}$
Total asset turnover $= \frac{\text{Sales}}{\text{Total assets}}$	PEG ratio $= \frac{\text{Price–earnings ratio}}{\text{Earnings growth rate (\%)}}$
	Price–sales ratio $= \frac{\text{Price per share}}{\text{Sales per share}}$
	Market-to-book-ratio $= \frac{\text{Market value per share}}{\text{Book value per share}}$
	Tobin's Q Ratio $= \frac{\text{Market value of assets}}{\text{Replacement cost of assets}}$

The Du Pont Identity 3.4

As we mentioned in discussing ROA and ROE, the difference between these two profitability measures is a reflection of the use of debt financing, or financial leverage. We illustrate the relationship between these measures in this section by investigating a famous way of decomposing ROE into its component parts.

A CLOSER LOOK AT ROE

To begin, let's recall the definition of ROE:

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

If we were so inclined, we could multiply this ratio by Assets/Assets without changing anything:

$$\begin{aligned}\text{Return on equity} &= \frac{\text{Net income}}{\text{Total equity}} = \frac{\text{Net income}}{\text{Total equity}} \times \frac{\text{Assets}}{\text{Assets}} \\ &= \frac{\text{Net income}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Total equity}}\end{aligned}$$

请注意，我们已经把ROE表述成两个其他比率——资产报酬率（ROA）和权益乘数的乘积：

ROE = ROA×权益乘数 = ROA×(1+债务权益率)

Notice that we have expressed the ROE as the product of two other ratios—ROA and the equity multiplier:

$$\text{ROE} = \text{ROA} \times \text{Equity multiplier} = \text{ROA} \times (1 + \text{Debt–equity ratio})$$

Looking back at Prufrock, for example, we see that the debt–equity ratio was .39 and ROA was 10.12 percent. Our work here implies that Prufrock's ROE, as we previously calculated, is this:

$$\text{ROE} = 10.12\% \times 1.39 = 14\%$$

The difference between ROE and ROA can be substantial, particularly for certain businesses. For example, in 2008, Bank of America has an ROA of only .53 percent, which is fairly typical for a large bank. However, banks tend to borrow a lot of money and, as a result, have relatively large equity multipliers. For Bank of America, ROE is about 5.75 percent, implying an equity multiplier of 10.85.

We can further decompose ROE by multiplying the top and bottom by total sales:

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

If we rearrange things a bit, ROE looks like this:

$$\begin{aligned}\text{ROE} &= \underbrace{\frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}}}_{\text{Return on assets}} \times \frac{\text{Assets}}{\text{Total equity}} \\ &= \text{Profit margin} \times \text{Total asset turnover} \times \text{Equity multiplier}\end{aligned} \qquad [3.24]$$

杜邦恒等式是把ROE分解成经营效率、资产使用效率和财务杠杆三部分的通行的表达式。

What we have now done is to partition ROA into its two component parts, profit margin and total asset turnover. The last expression of the preceding equation is called the **Du Pont identity**, after the Du Pont Corporation, which popularized its use.

We can check this relationship for Prufrock by noting that the profit margin was 15.7 percent and the total asset turnover was .64:

$$\begin{aligned}\text{ROE} &= \text{Profit margin} \times \text{Total asset turnover} \times \text{Equity multiplier} \\ &= 15.7\% \times .64 \times 1.39 \\ &= 14\%\end{aligned}$$

This 14 percent ROE is exactly what we had before.

杜邦恒等式告诉我们ROE受3个因素的影响：
1. 经营效率（用利润率来计量）；
2. 资产使用效率（用总资产周转率来计量）；
3. 财务杠杆（用权益乘数来计量）。

经营效率或（和）资产使用效率的缺陷都将表现为资产报酬率的降低，最终导致较低的ROE。

The Du Pont identity tells us that ROE is affected by three things:

1. Operating efficiency (as measured by profit margin).
2. Asset use efficiency (as measured by total asset turnover).
3. Financial leverage (as measured by the equity multiplier).

Weakness in either operating or asset use efficiency (or both) will show up in a diminished return on assets, which will translate into a lower ROE.

Considering the Du Pont identity, it appears that the ROE could be leveraged up by increasing the amount of debt in the firm. However, notice that increasing debt also increases interest expense, which reduces profit margins, which acts to reduce ROE. So, ROE could go up or down, depending. More important, the use of debt financing has a number of other effects, and as we discuss at some length in Part 6, the amount of leverage a firm uses is governed by its capital structure policy.

The decomposition of ROE we've discussed in this section is a convenient way of systematically approaching financial statement analysis. If ROE is unsatisfactory by some measure, then the Du Pont identity tells you where to start looking for the reasons.

General Motors provides a good example of how Du Pont analysis can be very useful and also illustrates why care must be taken in interpreting ROE values. In 1989, GM had an ROE of 12.1 percent. By 1993, its ROE had improved to 44.1 percent, a dramatic improvement. On closer inspection, however, we find that over the same period GM's profit margin had declined from 3.4 to 1.8 percent, and ROA had declined from 2.4 to 1.3 percent. The decline in ROA was moderated only slightly by an increase in total asset turnover from .71 to .73 over the period.

Given this information, how is it possible for GM's ROE to have climbed so sharply? From our understanding of the Du Pont identity, it must be the case that GM's equity multiplier increased substantially. In fact, what happened was that GM's book equity value was almost wiped out overnight in 1992 by changes in the accounting treatment of pension liabilities. If a company's equity value declines sharply, its equity multiplier rises. In GM's case, the multiplier went from 4.95 in 1989 to 33.62 in 1993. In sum, the dramatic "improvement" in GM's ROE was almost entirely due to an accounting change that affected the equity multiplier and doesn't really represent an improvement in financial performance at all.

如果一家公司的权益价值急剧降低，它的权益乘数就会升高。在GM的例子中，权益乘数从1989年的4.95变为1993年的33.62。总之，GM的ROE的巨幅“提高”几乎完全是由于一项会计变更影响到了权益乘数，根本就不能真正代表财务业绩的提高。

AN EXPANDED DU PONT ANALYSIS

So far, we've seen how the Du Pont equation lets us break down ROE into its basic three components: profit margin, total asset turnover, and financial leverage. We now extend this analysis to take a closer look at how key parts of a firm's operations feed into ROE. To get going, we went to the *S&P Market Insight* Web page (www.mhhe.com/edumarketinsight) and pulled abbreviated financial statements for science and technology giant Du Pont. What we found is summarized in Table 3.9.

Using the information in Table 3.9, Figure 3.1 shows how we can construct an expanded Du Pont analysis for Du Pont and present that analysis in chart form. The advantage of the extended Du Pont chart is that it lets us examine several ratios at once, thereby getting a better overall picture of a company's performance and also allowing us to determine possible items to improve.

Looking at the left side of our Du Pont chart in Figure 3.1, we see items related to profitability. As always, profit margin is calculated as net income divided by sales. But as our

TABLE 3.9

FINANCIAL STATEMENTS FOR DU PONT
12 months ending December 31, 2007
(All numbers are in millions)

Income Statement		Balance Sheet			
Sales	$30,454	Current assets		Current liabilities	
CoGS	20,318	Cash	$ 1,436	Accounts payable	$ 2,723
Gross profit	$10,136	Accounts receivable	5,683	Notes payable	1,346
SG&A expense	4,547	Inventory	6,041	Other	4,472
Depreciation	1,371	Total	$13,160	Total	$ 8,541
EBIT	$ 4,218				
Interest	482	Fixed assets	$20,971	Total long-term debt	$14,454
EBT	$ 3,736				
Taxes	748			Total equity	$11,136
Net income	$ 2,988	Total assets	$34,131	Total liabilities and equity	$34,131

FIGURE 3.1 Extended Du Pont Chart for Du Pont

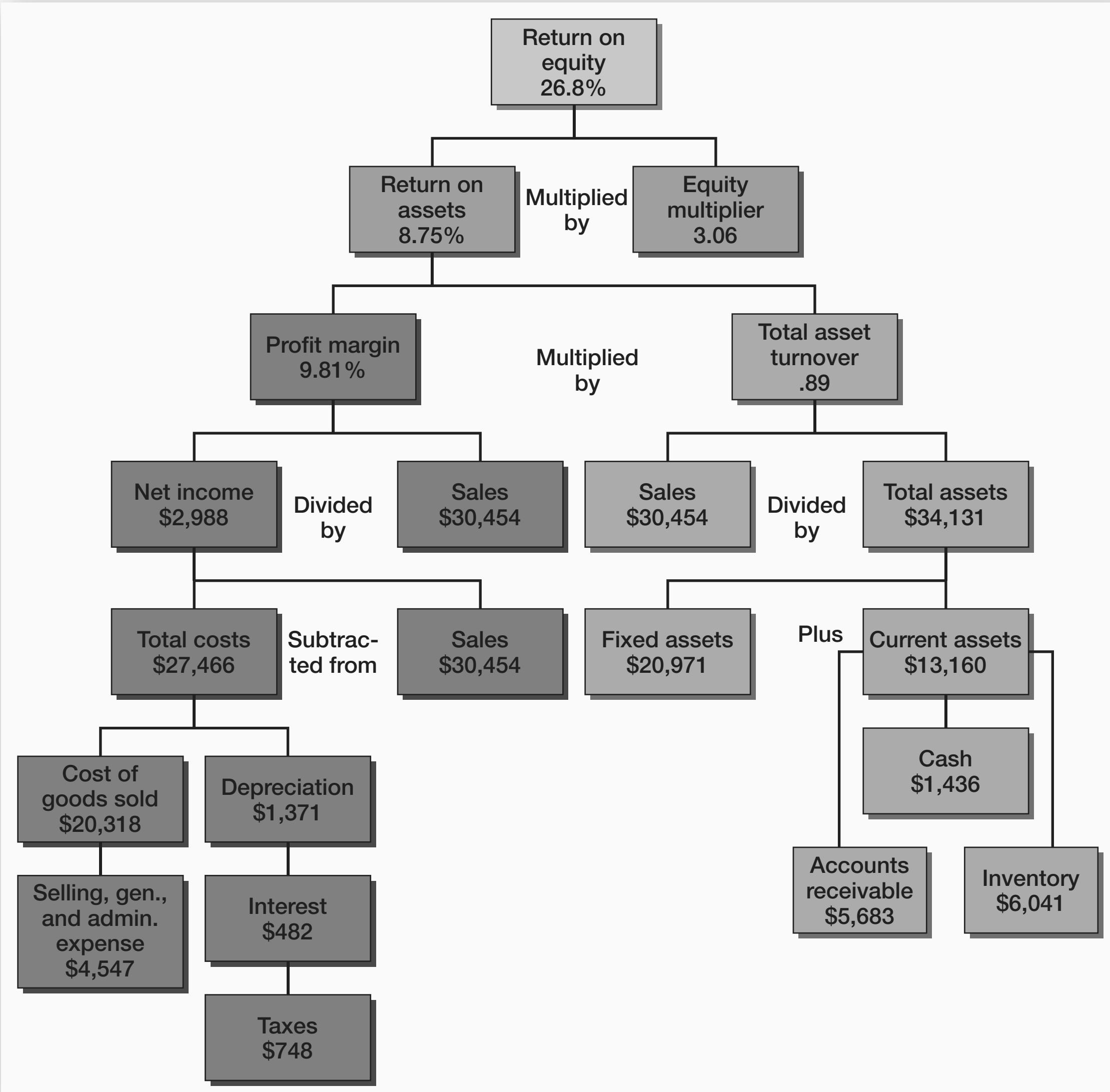

chart emphasizes, net income depends on sales and a variety of costs, such as cost of goods sold (CoGS) and selling, general, and administrative expenses (SG&A expense). Du Pont can increase its ROE by increasing sales and also by reducing one or more of these costs. In other words, if we want to improve profitability, our chart clearly shows us the areas on which we should focus.

Turning to the right side of Figure 3.1, we have an analysis of the key factors underlying total asset turnover. Thus, for example, we see that reducing inventory holdings through more efficient management reduces current assets, which reduces total assets, which then improves total asset turnover.

Concept Questions

3.4a Return on assets, or ROA, can be expressed as the product of two ratios. Which two?

3.4b Return on equity, or ROE, can be expressed as the product of three ratios. Which three?

Using Financial Statement Information 3.5

Our last task in this chapter is to discuss in more detail some practical aspects of financial statement analysis. In particular, we will look at reasons for analyzing financial statements, how to get benchmark information, and some problems that come up in the process.

WHY EVALUATE FINANCIAL STATEMENTS?

As we have discussed, the primary reason for looking at accounting information is that we don't have, and can't reasonably expect to get, market value information. We stress that whenever we have market information, we will use it instead of accounting data. Also, if there is a conflict between accounting and market data, market data should be given precedence.

Financial statement analysis is essentially an application of "management by exception." In many cases, such analysis will boil down to comparing ratios for one business with average or representative ratios. Those ratios that seem to differ the most from the averages are tagged for further study.

Internal Uses Financial statement information has a variety of uses within a firm. Among the most important of these is performance evaluation. For example, managers are frequently evaluated and compensated on the basis of accounting measures of performance such as profit margin and return on equity. Also, firms with multiple divisions frequently compare the performance of those divisions using financial statement information.

财务报表信息在企业内部的应用很广泛。其中最重要的应用之一是业绩评价。

Another important internal use we will explore in the next chapter is planning for the future. As we will see, historical financial statement information is useful for generating projections about the future and for checking the realism of assumptions made in those projections.

External Uses Financial statements are useful to parties outside the firm, including short-term and long-term creditors and potential investors. For example, we would find such information quite useful in deciding whether to grant credit to a new customer.

财务报表对于企业的外部各方都很有用，包括短期和长期债权人以及潜在的投资者。

We would also use this information to evaluate suppliers, and suppliers would review our statements before deciding to extend credit to us. Large customers use this information to decide if we are likely to be around in the future. Credit-rating agencies rely on financial statements in assessing a firm's overall creditworthiness. The common theme here is that financial statements are a prime source of information about a firm's financial health.

We would also find such information useful in evaluating our main competitors. We might be thinking of launching a new product. A prime concern would be whether the competition would jump in shortly thereafter. In this case, we would be interested in learning about our competitors' financial strength to see if they could afford the necessary development.

Finally, we might be thinking of acquiring another firm. Financial statement information would be essential in identifying potential targets and deciding what to offer.

CHOOSING A BENCHMARK

Given that we want to evaluate a division or a firm based on its financial statements, a basic problem immediately comes up. How do we choose a benchmark, or a standard of comparison? We describe some ways of getting started in this section.

历史是我们能用的一个标准。假设我们发现根据最近的财务报表信息，某企业目前的比率是2.4。回头看看过去的10年，我们会发现这个比率在此期间内下降得相当缓慢。

Time Trend Analysis One standard we could use is history. Suppose we found that the current ratio for a particular firm is 2.4 based on the most recent financial statement information. Looking back over the last 10 years, we might find that this ratio had declined fairly steadily over that period.

Based on this, we might wonder if the liquidity position of the firm has deteriorated. It could be, of course, that the firm has made changes that allow it to more efficiently use its current assets, the nature of the firm's business has changed, or business practices have changed. If we investigate, we might find any of these possible explanations behind the decline. This is an example of what we mean by management by exception—a deteriorating time trend may not be bad, but it does merit investigation.

建立基准的第二种方法是确定在相同的市场上参与竞争、有着类似的资产和类似的经营方式的类似企业。换句话说，我们需要确定一个同业。这样做显然有问题，因为没有两家完全一样的公司。因此，选择哪一家公司作为比较的依据带有主观性。

确定潜在的同业的一个通用的方法是根据标准产业分类（SIC）编码。它是美国政府用来根据经营业务类型对企业进行分类的一种编码，是美国政府出于统计报告的需要而编制的4位数的编码。

Peer Group Analysis The second means of establishing a benchmark is to identify firms similar in the sense that they compete in the same markets, have similar assets, and operate in similar ways. In other words, we need to identify a *peer group*. There are obvious problems with doing this because no two companies are identical. Ultimately the choice of which companies to use as a basis for comparison is subjective.

One common way of identifying potential peers is based on **Standard Industrial Classification (SIC) codes**. These are four-digit codes established by the U.S. government for statistical reporting. Firms with the same SIC code are frequently assumed to be similar.

The first digit in a SIC code establishes the general type of business. For example, firms engaged in finance, insurance, and real estate have SIC codes beginning with 6. Each additional digit narrows down the industry. So, companies with SIC codes beginning with 60 are mostly banks and banklike businesses; those with codes beginning with 602 are mostly commercial banks; and SIC code 6025 is assigned to national banks that are members of the Federal Reserve system. Table 3.10 lists selected two-digit codes (the first two digits of the four-digit SIC codes) and the industries they represent.

SIC codes are far from perfect. For example, suppose you were examining financial statements for Wal-Mart, the largest retailer in the United States. The relevant two-digit SIC code is 53, General Merchandise Stores. In a quick scan of the nearest financial database, you would find about 20 large, publicly owned corporations with a similar SIC code, but you might not be comfortable with some of them. Target would seem to be a reasonable peer, but Neiman Marcus also carries the same industry code. Are Wal-Mart and Neiman Marcus really comparable?

As this example illustrates, it is probably not appropriate to blindly use SIC code–based averages. Instead, analysts often identify a set of primary competitors and then compute a set of averages based on just this group. Also, we may be more concerned with a group of the top firms in an industry, not the average firm. Such a group is called an *aspirant group* because we aspire to be like its members. In this case, a financial statement analysis reveals how far we have to go.

Beginning in 1997, a new industry classification system was initiated. Specifically, the North American Industry Classification System (NAICS, pronounced "nakes") is intended to replace the older SIC codes, and it will eventually. Currently, however, SIC codes are still widely used.

With these caveats about SIC codes in mind, we can now take a look at a specific industry. Suppose we are in the retail hardware business. Table 3.11 contains some condensed

TABLE 3.10
Selected Two-Digit SIC Codes

Agriculture, Forestry, and Fishing	**Wholesale Trade**
01 Agriculture production—crops	50 Wholesale trade—durable goods
08 Forestry	51 Wholesale trade—nondurable goods
09 Fishing, hunting, and trapping	
Mining	**Retail Trade**
10 Metal mining	54 Food stores
12 Bituminous coal and lignite mining	55 Automobile dealers and gas stations
13 Oil and gas extraction	58 Eating and drinking places
Construction	**Finance, Insurance, and Real Estate**
15 Building construction	60 Banking
16 Construction other than building	63 Insurance
17 Construction—special trade contractors	65 Real estate
Manufacturing	**Services**
28 Chemicals and allied products	78 Motion pictures
29 Petroleum refining and related industries	80 Health services
35 Machinery, except electrical	82 Educational services
37 Transportation equipment	
Transportation, Communication, Electric, Gas, and Sanitary Service	
40 Railroad transportation	
45 Transportation by air	
49 Electric, gas, and sanitary services	

common-size financial statements for this industry from the Risk Management Association (RMA, formerly known as Robert Morris Associates), one of many sources of such information. Table 3.12 contains selected ratios from the same source.

There is a large amount of information here, most of which is self-explanatory. On the right in Table 3.11, we have current information reported for different groups based on sales. Within each sales group, common-size information is reported. For example, firms with sales in the $10 million to $25 million range have cash and equivalents equal to 7 percent of total assets. There are 38 companies in this group, out of 326 in all.

这里的信息量相当大，其中大部分都不需要另外再做解释。表3-11的右边有根据销售收入划分的不同组别的当前报告信息。在每一个组别中，都报告了同比信息。

On the left, we have three years' worth of summary historical information for the entire group. For example, operating profit fell from 3.0 percent of sales to 2.5 percent over that time.

Table 3.12 contains some selected ratios, again reported by sales groups on the right and time period on the left. To see how we might use this information, suppose our firm has a current ratio of 2. Based on these ratios, is this value unusual?

Looking at the current ratio for the overall group for the most recent year (third column from the left in Table 3.12), we see that three numbers are reported. The one in the middle, 2.5, is the median, meaning that half of the 326 firms had current ratios that were lower and half had bigger current ratios. The other two numbers are the upper and lower quartiles. So, 25 percent of the firms had a current ratio larger than 3.9 and 25 percent had a current ratio smaller than 1.6. Our value of 2 falls comfortably within these bounds, so it doesn't appear too unusual. This comparison illustrates how knowledge of the range of ratios is important

仔细观察最近年度（表3-12左边第3栏）全部公司的流动比率，我们会发现列示了3个数据。一个在中间，为2.5，是中位数，它表示在326家公司中有一半的流动比率比它低，另一半的流动比率则比它高。另外两个数据分别是上、下四分位数。因此，有25%的企业的流动比率高于3.9，有25%的企业的流动比率低于1.6。我们的数值2正好在这个范围以内，因此它并不算异常。

TABLE 3.11 Selected Financial Statement Information

Retail—Hardware Stores SIC# 5072, 5251 (NAICS 444130)									
COMPARATIVE HISTORICAL DATA				CURRENT DATA SORTED BY SALES					
			Type of Statement						
21	12	10	Unqualified		4			2	4
51	51	50	Reviewed	1	10	8	13	13	5
94	81	94	Compiled	6	44	21	15	7	1
60	77	77	Tax Returns	17	33	15	7	3	2
81	86	95	Other	11	24	21	12	13	14
4/1/04–3/31/05	**4/1/05–3/31/06**	**4/1/06–3/31/07**		**62 (4/1–9/30/06)**		**264 (10/1/06–3/31/07)**			
ALL	**ALL**	**ALL**		**0-1MM**	**1-3MM**	**3-5MM**	**5-10MM**	**10-25MM**	**25MM & OVER**
307	**307**	**326**	**NUMBER OF STATEMENTS**	**35**	**115**	**65**	**47**	**38**	**26**
			Assets						
6.1%	6.1%	6.0%	Cash & Equivalents	4.6%	6.5%	5.6%	6.7%	7.0%	4.7%
14.6	14.6	12.6	Trade Receivables (net)	7.4	9.9	14.0	15.2	17.6	16.7
50.0	51.3	52.2	Inventory	59.2	53.7	52.6	47.9	49.4	47.4
1.4	2.4	2.0	All Other Current	.9	2.7	1.8	2.3	1.1	1.9
72.2	74.4	72.9	Total Current	72.1	72.7	74.0	72.1	75.2	70.8
16.6	14.3	16.1	Fixed Assets (net)	14.9	16.4	14.0	15.7	16.4	22.6
2.3	2.6	2.0	Intangibles (net)	4.8	1.8	1.1	2.7	1.3	1.3
8.9	8.7	8.9	All Other Non-Current	8.2	9.1	10.9	9.6	7.2	5.4
100.0	100.0	100.0	Total	100.0	100.0	100.0	100.0	100.0	100.0
			Liabilities						
10.4	11.7	9.9	Notes Payable-Short Term	15.7	9.4	7.2	9.9	9.6	11.2
3.5	3.3	3.2	Cur. Mat.-L.T.D.	3.7	2.7	4.7	3.6	2.5	1.0
14.7	15.2	13.7	Trade Payables	14.7	11.2	14.4	15.1	14.6	17.4
.2	.2	.2	Income Taxes Payable	.0	.2	.2	.2	.1	.3
6.9	7.3	6.9	All Other Current	5.1	6.9	6.1	7.6	9.1	7.4
35.7	37.7	33.8	Total Current	39.2	30.3	32.7	36.4	35.9	37.4
21.3	19.5	20.3	Long-Term Debt	35.5	24.6	18.5	11.7	13.9	9.9
.2	.2	.1	Deferred Taxes	.0	.0	.1	.1	.2	.4
4.9	7.4	7.6	All Other Non-Current	11.4	8.3	10.1	4.8	2.6	5.3
37.9	35.3	38.2	Net Worth	13.8	36.7	38.6	47.0	47.4	47.0
100.0	100.0	100.0	Total Liabilities & Net Worth	100.0	100.0	100.0	100.0	100.0	100.0
			Income Data						
100.0	100.0	100.0	Net Sales	100.0	100.0	100.0	100.0	100.0	100.0
35.6	36.0	36.7	Gross Profit	38.3	37.9	37.3	35.5	33.9	34.4
32.6	34.1	34.2	Operating Expenses	38.9	35.1	34.4	32.9	30.2	31.7
3.0	2.0	2.5	Operating Profit	−.6	2.8	2.8	2.6	3.6	2.7
.2	−.1	.2	All Other Expenses (net)	1.2	.3	.1	−.2	.0	.2
2.7	2.1	2.3	Profit Before Taxes	−1.8	2.5	2.7	2.8	3.6	2.5

M = $ thousand; MM = $ million.

Interpretation of Statement Studies Figures: RMA cautions that the studies be regarded only as a general guideline and not as an absolute industry norm. This is due to limited samples within categories, the categorization of companies by their primary Standard Industrial Classification (SIC) number only, and different methods of operations by companies within the same industry. For these reasons, RMA recommends that the figures be used only as general guidelines in addition to other methods of financial analysis.

TABLE 3.12 Selected Ratios

Retail—Hardware Stores SIC# 5072, 5251 (NAICS 444130)									
COMPARATIVE HISTORICAL DATA				**CURRENT DATA SORTED BY SALES**					
			Type of Statement						
21	12	10	Unqualified		4			2	4
51	51	50	Reviewed	1	10	8	13	13	5
94	81	94	Compiled	6	44	21	15	7	1
60	77	77	Tax Returns	17	33	15	7	3	2
81	86	95	Other	11	24	21	12	13	14
4/1/04–3/31/05	**4/1/05–3/31/06**	**4/1/06–3/31/07**		**62 (4/1–9/30/06)**		**264 (10/1/06–3/31/07)**			
ALL	**ALL**	**ALL**		**0-1MM**	**1-3MM**	**3-5MM**	**5-10MM**	**10-25MM**	**25MM**
307	**307**	**326**	**NUMBER OF STATEMENTS**	**35**	**115**	**65**	**47**	**38**	**& OVER 26**
			Ratios						
3.5	3.5	3.9		4.3	4.6	4.1	3.2	3.6	2.9
2.3	2.1	2.5	Current	2.3	3.0	2.6	2.1	2.4	1.7
1.5	1.5	1.6		1.6	1.7	1.8	1.6	1.4	1.3
1.1	1.0	1.1		.6	1.4	1.4	1.0	1.3	1.2
.6	.5	.5	Quick	.3	.5	.5	.6	.7	.4
.3	.2	.2		.1	.2	.2	.3	.3	.2
6 58.1	**7** 55.3	**7** 50.5		**5** 69.3	**8** 48.6	**8** 45.7	**9** 42.5	**8** 46.5	**7** 55.6
15 24.0	**14** 26.3	**13** 28.6	Sales/Receivables	**11** 34.2	**13** 28.6	**12** 30.7	**17** 21.5	**19** 19.5	**14** 26.9
31 11.6	**31** 11.8	**25** 14.6		**16** 22.7	**20** 17.9	**26** 14.3	**24** 15.0	**37** 10.0	**45** 8.1
76 4.8	**79** 4.6	**92** 4.0		**154** 2.4	**115** 3.2	**94** 3.9	**75** 4.9	**59** 6.2	**77** 4.8
116 3.1	**121** 3.0	**136** 2.7	Cost of Sales/ Inventory	**209** 1.7	**152** 2.4	**125** 2.9	**98** 3.7	**108** 3.4	**97** 3.8
161 2.3	**178** 2.0	**187** 2.0		**323** 1.1	**191** 1.9	**168** 2.2	**167** 2.2	**180** 2.0	**147** 2.5
18 20.7	**17** 21.6	**15** 24.5		**11** 31.8	**13** 27.2	**17** 21.1	**19** 19.0	**15** 24.9	**21** 17.6
28 13.0	**27** 13.3	**27** 13.7	Cost of Sales/ Payables	**28** 13.2	**25** 14.7	**27** 13.5	**27** 13.4	**24** 15.3	**33** 11.0
42 8.8	**45** 8.1	**43** 8.6		**56** 6.6	**38** 9.7	**47** 7.8	**39** 9.3	**39** 9.4	**64** 6.8
4.4	4.1	3.9		2.7	3.6	4.1	4.2	4.8	5.1
6.8	6.6	5.5	Sales/Working Capital	4.4	5.0	6.2	6.8	6.1	8.7
12.6	12.1	9.7		10.5	7.1	10.1	12.2	11.6	19.1
9.1	8.5	7.2		3.0	5.5	9.3	8.2	10.5	17.5
(285) 3.7	(282) 3.1	(304) 3.0	EBIT/Interest	(33) 1.5	(104) 2.6	(62) 4.8	(45) 3.4	(34) 4.7	4.5
1.4	1.3	1.3		−.4	1.2	1.3	1.3	1.6	1.0
5.1	3.8	2.9			2.0	2.8	3.4	10.0	
(63) 2.0	(56) 1.6	(63) 1.5	Net Profit + Depr., Dep., Amort./Cur. Mat. L/T/D		(14) 1.3	(14) 1.5	(14) 2.0	(10) 1.7	
.7	.6	.8			.8	.5	.7	.8	
.1	.1	.1		.1	.1	.1	.1	.1	.2
.4	.4	.3	Fixed/Worth	1.4	.3	.3	.4	.3	.5
1.1	.9	1.0		−1.1	1.3	.8	.7	.7	.9
.7	.8	.7		1.8	.7	.7	.5	.4	.6
1.7	1.7	1.5	Debt/Worth	4.4	1.5	1.4	1.6	1.2	1.1
4.6	4.5	3.8		−5.9	4.9	3.8	2.9	2.3	1.8
30.2	29.7	32.3		22.3	33.9	41.3	30.5	36.9	30.5
(274) 13.6	(269) 13.5	(287) 12.3	% Profit Before Taxes/ Tangible Net Worth	(21) 6.8	(98) 13.7	(59) 13.1	10.0	(36) 12.3	11.9
4.2	3.7	4.3		−2.2	5.6	4.5	2.5	4.7	3.5

(continued)

TABLE 3.12 *(continued)*

4/1/04–3/31/05 ALL 307	4/1/05–3/31/06 ALL 307	4/1/06–3/31/07 ALL 326	NUMBER OF STATEMENTS	62 (4/1–9/30/06)		264 (10/1/06–3/31/07)			
				0-1MM 35	1-3MM 115	3-5MM 65	5-10MM 47	10-25MM 38	25MM & OVER 26
11.2 5.2 1.0	10.5 5.3 .7	11.1 4.8 1.0	% Profit Before Taxes/Total Assets	6.3 2.4 −5.2	11.9 4.8 .9	12.3 5.2 1.2	11.0 4.7 1.4	13.6 7.1 3.1	13.3 6.4 .5
49.9 21.1 9.8	59.6 22.9 10.7	52.0 20.3 9.8	Sales/Net Fixed Assets	40.5 13.9 8.4	59.4 21.1 9.0	60.1 23.7 12.5	46.1 18.5 9.8	57.0 20.2 10.2	37.9 14.2 7.8
3.2 2.5 1.9	3.1 2.5 1.9	2.8 2.4 1.7	Sales/Total Assets	2.3 1.6 1.2	2.7 2.2 1.6	3.1 2.5 2.0	3.2 2.5 2.0	3.3 2.5 2.3	3.0 2.6 1.9
.7 (249) 1.2 2.0	.5 (262) 1.0 1.9	.7 (274) 1.2 2.0	% Depr., Dep., Amort./Sales	.6 (26) 2.0 3.4	.6 (94) 1.3 2.7	.7 (63) 1.3 1.7	.5 (43) 1.1 2.0	.7 (33) 1.0 1.4	.8 (25) 1.0 1.9
1.7 (164) 3.5 6.2	2.0 (187) 3.4 5.7	1.8 (193) 3.2 5.3	% Officers', Directors', Owners' Comp/Sales	3.0 (23) 4.5 8.2	2.2 (69) 3.7 5.7	2.1 (44) 3.2 5.1	1.3 (31) 3.0 4.8	1.3 (19) 1.8 2.7	
5346164M **2015818M**	**5361226M** **1926895M**	**4969626M** **1977145M**	Net Sales ($) Total Assets ($)	**24032M** **16500M**	**215140M** **109029M**	**247741M** **106265M**	**336160M** **157126M**	**620293M** **251225M**	**3526260M** **1337000M**

M = $ thousand; MM = $ million.

in addition to knowledge of the average. Notice how stable the current ratio has been for the last three years.

EXAMPLE 3.5 More Ratios

观察表3-12中最近报告的销售收入/应收账款比率和EBIT/利息比率数值。总体中位数是多少？这些比率数值是多少？

Take a look at the most recent numbers reported for Sales/Receivables and EBIT/Interest in Table 3.12. What are the overall median values? What are these ratios?

If you look back at our discussion, you will see that these are the receivables turnover and the times interest earned, or TIE, ratios. The median value for receivables turnover for the entire group is 28.6 times. So, the days in receivables would be 365/28.6 = 13, which is the bold-faced number reported. The median for the TIE is 3.0 times. The number in parentheses indicates that the calculation is meaningful for, and therefore based on, only 304 of the 326 companies. In this case, the reason is that only 304 companies paid any significant amount of interest.

There are many sources of ratio information in addition to the one we examine here. Our nearby *Work the Web* box shows how to get this information for just about any company, along with some useful benchmarking information. Be sure to look it over and then benchmark your favorite company.

PROBLEMS WITH FINANCIAL STATEMENT ANALYSIS

We close our chapter on financial statements by discussing some additional problems that can arise in using financial statements. In one way or another, the basic problem with financial statement analysis is that there is no underlying theory to help us identify which quantities to look at and to guide us in establishing benchmarks.

As we discuss in other chapters, there are many cases in which financial theory and economic logic provide guidance in making judgments about value and risk. Little such help exists with financial statements. This is why we can't say which ratios matter the most and what a high or low value might be.

One particularly severe problem is that many firms are conglomerates, owning more or less unrelated lines of business. The consolidated financial statements for such firms don't fit any neat industry category. Going back to department stores, for example, Sears has had an SIC code of 6710 (Holding Offices) because of its diverse financial and retailing operations. More generally, the kind of peer group analysis we have been describing works best when the firms are strictly in the same line of business, the industry is competitive, and there is only one way of operating.

Another problem that is becoming increasingly common is that major competitors and natural peer group members in an industry may be scattered around the globe. The automobile industry is an obvious example. The problem here is that financial statements from outside the

另一个正在变得越来越普遍的问题是某一产业中的主要竞争者和自然的同业可能会散布在世界各地。

WORK THE WEB

As we discussed in this chapter, ratios are an important tool for examining a company's performance. Gathering the necessary financial statements to calculate ratios can be tedious and time-consuming. Fortunately many sites on the Web provide this information for free. One of the best is www.reuters.com. We went there, entered a ticker symbol ("AZO" for AutoZone), and selected the "Ratios" link. Here is an abbreviated look at the results:

AutoZone Inc AZO (NYSE)

Sector: Services **Industry:** Retail (Specialty) ‣ View **AZO** on other exchanges

As of 2:27 PM EST	Price Change	Percent Change
$117.07 USD	▾.71	▾.60%

FINANCIAL STRENGTH

	Company	Industry	Sector	S&P 500
Quick Ratio (MRQ)	.12	.89	.68	1.16
Current Ratio (MRQ)	1.01	1.76	1.07	1.64
LT Debt to Equity (MRQ)	7.42	.63	.93	.59
Total Debt to Equity (MRQ)	7.42	.68	1.13	.78
Interest Coverage (TTM)	8.84	20.88	8.80	14.00

Most of the information is self-explanatory. Interest Coverage ratio is the same as the Times Interest Earned ratio discussed in the text. The abbreviation MRQ refers to results from the most recent quarterly financial statements, and TTM refers to results covering the previous ("trailing") 12 months. This site also provides a comparison to the industry, business sector, and S&P 500 averages for the ratios. Other ratios available on the site have five-year averages calculated. Have a look!

Questions

1. *Go to www.reuters.com and find the major ratio categories listed on this website. How do the categories differ from the categories listed in the textbook?*
2. *On www.reuters.com, the profitability ratios and management effectiveness ratios have the 5-year average ratios presented. How do these ratios for the current year for Microsoft compare to its 5-year average? How does Microsoft compare to the industry for these ratios?*

United States do not necessarily conform at all to GAAP. The existence of different standards and procedures makes it difficult to compare financial statements across national borders.

即使在经营同一种业务的公司之间，也有可能不具有可比性。

Even companies that are clearly in the same line of business may not be comparable. For example, electric utilities engaged primarily in power generation are all classified in the same group (SIC 4911). This group is often thought to be relatively homogeneous. However, most utilities operate as regulated monopolies, so they don't compete much with each other, at least not historically. Many have stockholders, and many are organized as cooperatives with no stockholders. There are several different ways of generating power, ranging from hydroelectric to nuclear, so the operating activities of these utilities can differ quite a bit. Finally, profitability is strongly affected by regulatory environment, so utilities in different locations can be similar but show different profits.

其他几个一般性的问题也会经常发生。首先，不同的企业采用不同的会计程序——例如，对存货的会计处理。这使得报表很难进行比较。其次，不同企业的财务年度截止时间不一样。对于季节性经营的企业（例如圣诞节档期的零售商）来说，这会导致很难比较其资产负债表，因为在一年当中，账户金额存在着波动。最后，对于每一家特定的企业而言，非常和突发事项，例如出售资产所带来的一次性利得等，可能会影响财务业绩。在不同企业之间进行比较时，这些事项可能会带来误导的信号。

Several other general problems frequently crop up. First, different firms use different accounting procedures—for inventory, for example. This makes it difficult to compare statements. Second, different firms end their fiscal years at different times. For firms in seasonal businesses (such as a retailer with a large Christmas season), this can lead to difficulties in comparing balance sheets because of fluctuations in accounts during the year. Finally, for any particular firm, unusual or transient events, such as a one-time profit from an asset sale, may affect financial performance. In comparing firms, such events can give misleading signals.

Concept Questions

3.5a What are some uses for financial statement analysis?

3.5b Why do we say that financial statement analysis is management by exception?

3.5c What are SIC codes and how might they be useful?

3.5d What are some problems that can come up with financial statement analysis?

3.6 Summary and Conclusions

This chapter has discussed aspects of financial statement analysis:

1. *Sources and uses of cash:* We discussed how to identify the ways in which businesses obtain and use cash, and we described how to trace the flow of cash through a business over the course of the year. We briefly looked at the statement of cash flows.
2. *Standardized financial statements:* We explained that differences in size make it difficult to compare financial statements, and we discussed how to form common-size and common–base period statements to make comparisons easier.
3. *Ratio analysis:* Evaluating ratios of accounting numbers is another way of comparing financial statement information. We therefore defined and discussed a number of the most commonly reported and used financial ratios. We also discussed the famous Du Pont identity as a way of analyzing financial performance.
4. *Using financial statements:* We described how to establish benchmarks for comparison and discussed some types of information that are available. We then examined potential problems that can arise.

After you have studied this chapter, we hope that you have some perspective on the uses and abuses of financial statements. You should also find that your vocabulary of business and financial terms has grown substantially.

CHAPTER REVIEW AND SELF-TEST PROBLEMS

3.1 Sources and Uses of Cash Consider the following balance sheets for the Philippe Corporation. Calculate the changes in the various accounts and, where applicable, identify the change as a source or use of cash. What were the major sources and uses of cash? Did the company become more or less liquid during the year? What happened to cash during the year?

PHILIPPE CORPORATION
2008 and 2009 Balance Sheets
($ in millions)

	2008	2009
Assets		
Current assets		
Cash	$ 210	$ 215
Accounts receivable	355	310
Inventory	507	328
Total	$1,072	$ 853
Fixed assets		
Net plant and equipment	$6,085	$6,527
Total assets	$7,157	$7,380
Liabilities and Owners' Equity		
Current liabilities		
Accounts payable	$ 207	$ 298
Notes payable	1,715	1,427
Total	$1,922	$1,725
Long-term debt	$1,987	$2,308
Owners' equity		
Common stock and paid-in surplus	$1,000	$1,000
Retained earnings	2,248	2,347
Total	$3,248	$3,347
Total liabilities and owners' equity	$7,157	$7,380

3.2 Common-Size Statements Here is the most recent income statement for Philippe. Prepare a common-size income statement based on this information. How do you interpret the standardized net income? What percentage of sales goes to cost of goods sold?

PHILIPPE CORPORATION
2009 Income Statement
($ in millions)

Sales		$4,053
Cost of goods sold		2,780
Depreciation		550
Earnings before interest and taxes		$ 723
Interest paid		502
Taxable income		$ 221
Taxes (34%)		75
Net income		$ 146
Dividends	$47	
Addition to retained earnings	99	

3.3 Financial Ratios Based on the balance sheets and income statement in the previous two problems, calculate the following ratios for 2009:

Current ratio	________
Quick ratio	________
Cash ratio	________
Inventory turnover	________
Receivables turnover	________
Days' sales in inventory	________
Days' sales in receivables	________
Total debt ratio	________
Long-term debt ratio	________
Times interest earned ratio	________
Cash coverage ratio	________

3.4 ROE and the Du Pont Identity Calculate the 2009 ROE for the Philippe Corporation and then break down your answer into its component parts using the Du Pont identity.

ANSWERS TO CHAPTER REVIEW AND SELF-TEST PROBLEMS

3.1 We've filled in the answers in the following table. Remember, increases in assets and decreases in liabilities indicate that we spent some cash. Decreases in assets and increases in liabilities are ways of getting cash.

Philippe used its cash primarily to purchase fixed assets and to pay off short-term debt. The major sources of cash to do this were additional long-term borrowing, reductions in current assets, and additions to retained earnings.

PHILIPPE CORPORATION
2008 and 2009 Balance Sheets
($ in millions)

	2008	2009	Change	Source or Use of Cash
Assets				
Current assets				
Cash	$ 210	$ 215	+$ 5	
Accounts receivable	355	310	− 45	Source
Inventory	507	328	− 179	Source
Total	$1,072	$ 853	−$219	
Fixed assets				
Net plant and equipment	$6,085	$6,527	+$442	Use
Total assets	$7,157	$7,380	+$223	
Liabilities and Owners' Equity				
Current liabilities				
Accounts payable	$ 207	$ 298	+$ 91	Source
Notes payable	1,715	1,427	− 288	Use
Total	$1,922	$1,725	−$197	
Long-term debt	$1,987	$2,308	+$321	Source
Owners' equity				
Common stock and paid-in surplus	$1,000	$1,000	+$ 0	—
Retained earnings	2,248	2,347	+ 99	Source
Total	$3,248	$3,347	+$ 99	
Total liabilities and owners' equity	$7,157	$7,380	+$223	

The current ratio went from $1,072/1,922 = .56 to $853/1,725 = .49, so the firm's liquidity appears to have declined somewhat. Overall, however, the amount of cash on hand increased by $5.

3.2 We've calculated the common-size income statement here. Remember that we simply divide each item by total sales.

PHILIPPE CORPORATION 2009 Common-Size Income Statement		
Sales		100.0%
Cost of goods sold		68.6
Depreciation		13.6
Earnings before interest and taxes		17.8
Interest paid		12.3
Taxable income		5.5
Taxes (34%)		1.9
Net income		3.6%
Dividends	1.2%	
Addition to retained earnings	2.4%	

Net income is 3.6 percent of sales. Because this is the percentage of each sales dollar that makes its way to the bottom line, the standardized net income is the firm's profit margin. Cost of goods sold is 68.6 percent of sales.

3.3 We've calculated the following ratios based on the ending figures. If you don't remember a definition, refer back to Table 3.8.

Current ratio	$853/$1,725	= .49 times
Quick ratio	$525/$1,725	= .30 times
Cash ratio	$215/$1,725	= .12 times
Inventory turnover	$2,780/$328	= 8.48 times
Receivables turnover	$4,053/$310	= 13.07 times
Days' sales in inventory	365/8.48	= 43.06 days
Days' sales in receivables	365/13.07	= 27.92 days
Total debt ratio	$4,033/$7,380	= 54.6%
Long-term debt ratio	$2,308/$5,655	= 40.8%
Times interest earned ratio	$723/$502	= 1.44 times
Cash coverage ratio	$1,273/$502	= 2.54 times

3.4 The return on equity is the ratio of net income to total equity. For Philippe, this is $146/$3,347 = 4.4%, which is not outstanding.

Given the Du Pont identity, ROE can be written as follows:

$$\begin{aligned}\text{ROE} &= \text{Profit margin} \times \text{Total asset turnover} \times \text{Equity multiplier}\\ &= \$146/\$4{,}053 \times \$4{,}053/\$7{,}380 \times \$7{,}380/\$3{,}347\\ &= 3.6\% \times .549 \times 2.20\\ &= 4.4\%\end{aligned}$$

Notice that return on assets, ROA, is 3.6% × .549 = 1.98%.

CONCEPTS REVIEW AND CRITICAL THINKING QUESTIONS

1. **Current Ratio** [LO2] What effect would the following actions have on a firm's current ratio? Assume that net working capital is positive.
   - **a.** Inventory is purchased.
   - **b.** A supplier is paid.
   - **c.** A short-term bank loan is repaid.
   - **d.** A long-term debt is paid off early.
   - **e.** A customer pays off a credit account.
   - **f.** Inventory is sold at cost.
   - **g.** Inventory is sold for a profit.
2. **Current Ratio and Quick Ratio** [LO2] In recent years, Dixie Co. has greatly increased its current ratio. At the same time, the quick ratio has fallen. What has happened? Has the liquidity of the company improved?
3. **Current Ratio** [LO2] Explain what it means for a firm to have a current ratio equal to .50. Would the firm be better off if the current ratio were 1.50? What if it were 15.0? Explain your answers.
4. **Financial Ratios** [LO2] Fully explain the kind of information the following financial ratios provide about a firm:
   - **a.** Quick ratio.
   - **b.** Cash ratio.
   - **c.** Total asset turnover.
   - **d.** Equity multiplier.
   - **e.** Long-term debt ratio.
   - **f.** Times interest earned ratio.
   - **g.** Profit margin.
   - **h.** Return on assets.
   - **i.** Return on equity.
   - **j.** Price–earnings ratio.
5. **Standardized Financial Statements** [LO1] What types of information do common-size financial statements reveal about the firm? What is the best use for these common-size statements? What purpose do common–base year statements have? When would you use them?
6. **Peer Group Analysis** [LO2] Explain what peer group analysis is. As a financial manager, how could you use the results of peer group analysis to evaluate the performance of your firm? How is a peer group different from an aspirant group?
7. **Du Pont Identity** [LO3] Why is the Du Pont identity a valuable tool for analyzing the performance of a firm? Discuss the types of information it reveals compared to ROE considered by itself.
8. **Industry-Specific Ratios** [LO2] Specialized ratios are sometimes used in specific industries. For example, the so-called book-to-bill ratio is closely watched for semiconductor manufacturers. A ratio of .93 indicates that for every $100 worth of chips shipped over some period, only $93 worth of new orders were received. In January 2008, the semiconductor equipment industry's book-to-bill ratio was .89, compared to .85 during the month of December 2007. The book-to-bill ratio reached a recent low of .79 during September 2007. The three-month average of worldwide bookings in January 2008 was $1.12 billion, a decrease of 3 percent from December 2007, while the three-month average of billings was $1.27 billion, a 7 percent decrease from December 2007. What is this ratio intended to measure? Why do you think it is so closely followed?
9. **Industry-Specific Ratios** [LO2] So-called same-store sales are a very important measure for companies as diverse as McDonald's and Sears. As the name suggests, examining same-store sales means comparing revenues from the same stores or restaurants at two different points in time. Why might companies focus on same-store sales rather than total sales?

10. **Industry-Specific Ratios** [LO2] There are many ways of using standardized financial information beyond those discussed in this chapter. The usual goal is to put firms on an equal footing for comparison purposes. For example, for auto manufacturers, it is common to express sales, costs, and profits on a per-car basis. For each of the following industries, give an example of an actual company and discuss one or more potentially useful means of standardizing financial information:
    - **a.** Public utilities.
    - **b.** Large retailers.
    - **c.** Airlines.
    - **d.** Online services.
    - **e.** Hospitals.
    - **f.** College textbook publishers.
11. **Statement of Cash Flows** [LO4] In recent years, several manufacturing companies have reported the cash flow from the sale of Treasury securities in the cash from operations section of the statement of cash flows. What is the problem with this practice? Is there any situation in which this practice would be acceptable?
12. **Statement of Cash Flows** [LO4] Suppose a company lengthens the time it takes to pay suppliers. How would this affect the statement of cash flows? How sustainable is the change in cash flows from this practice?

QUESTIONS AND PROBLEMS

BASIC (Questions 1–17)

1. **Calculating Liquidity Ratios** [LO2] SDJ, Inc., has net working capital of $1,370, current liabilities of $3,720, and inventory of $1,950. What is the current ratio? What is the quick ratio?
2. **Calculating Profitability Ratios** [LO2] Wakers, Inc., has sales of $29 million, total assets of $17.5 million, and total debt of $6.3 million. If the profit margin is 8 percent, what is net income? What is ROA? What is ROE?
3. **Calculating the Average Collection Period** [LO2] Ortiz Lumber Yard has a current accounts receivable balance of $431,287. Credit sales for the year just ended were $3,943,709. What is the receivables turnover? The days' sales in receivables? How long did it take on average for credit customers to pay off their accounts during the past year?
4. **Calculating Inventory Turnover** [LO2] The Blue Moon Corporation has ending inventory of $407,534, and cost of goods sold for the year just ended was $4,105,612. What is the inventory turnover? The days' sales in inventory? How long on average did a unit of inventory sit on the shelf before it was sold?
5. **Calculating Leverage Ratios** [LO2] Crystal Lake, Inc., has a total debt ratio of .63. What is its debt–equity ratio? What is its equity multiplier?
6. **Calculating Market Value Ratios** [LO2] Bach Corp. had additions to retained earnings for the year just ended of $430,000. The firm paid out $175,000 in cash dividends, and it has ending total equity of $5.3 million. If the company currently has 210,000 shares of common stock outstanding, what are earnings per share? Dividends per share? Book value per share? If the stock currently sells for $63 per share, what is the market-to-book ratio? The price–earnings ratio? If the company had sales of $4.5 million, what is the price–sales ratio?
7. **Du Pont Identity** [LO4] If Roten Rooters, Inc., has an equity multiplier of 2.80, total asset turnover of 1.15, and a profit margin of 5.5 percent, what is its ROE?

8. **Du Pont Identity** [LO4] Braam Fire Prevention Corp. has a profit margin of 6.80 percent, total asset turnover of 1.95, and ROE of 18.27 percent. What is this firm's debt–equity ratio?

9. **Sources and Uses of Cash** [LO4] Based only on the following information for Bennington Corp., did cash go up or down? By how much? Classify each event as a source or use of cash.

Decrease in inventory	$375
Decrease in accounts payable	190
Increase in notes payable	210
Increase in accounts receivable	105

10. **Calculating Average Payables Period** [LO2] Tortoise, Inc., had a cost of goods sold of $28,834. At the end of the year, the accounts payable balance was $6,105. How long on average did it take the company to pay off its suppliers during the year? What might a large value for this ratio imply?

11. **Cash Flow and Capital Spending** [LO4] For the year just ended, Ypsilanti Yak Yogurt shows an increase in its net fixed assets account of $835. The company took $148 in depreciation expense for the year. How much did the company spend on new fixed assets? Is this a source or use of cash?

12. **Equity Multiplier and Return on Equity** [LO3] Organic Chicken Company has a debt–equity ratio of .65. Return on assets is 8.5 percent, and total equity is $540,000. What is the equity multiplier? Return on equity? Net income?

Just Dew It Corporation reports the following balance sheet information for 2008 and 2009. Use this information to work Problems 13 through 17.

JUST DEW IT CORPORATION
2008 and 2009 Balance Sheets

Assets	2008	2009	Liabilities and Owners' Equity	2008	2009
Current assets			Current liabilities		
Cash	$ 8,436	$ 10,157	Accounts payable	$ 43,050	$ 46,821
Accounts receivable	21,530	23,406	Notes payable	18,384	17,382
Inventory	38,760	42,650	Total	$ 61,434	$ 64,203
Total	$ 68,726	$ 76,213			
			Long-term debt	$ 25,000	$ 32,000
			Owners' equity		
			Common stock and paid-in surplus	$ 40,000	$ 40,000
			Retained earnings	168,998	188,316
Net plant and equipment	$226,706	$248,306	Total	$208,998	$228,316
Total assets	$295,432	$324,519	Total liabilities and owners' equity	$295,432	$324,519

13. **Preparing Standardized Financial Statements** [LO1] Prepare the 2008 and 2009 common-size balance sheets for Just Dew It.

14. **Preparing Standardized Financial Statements** [LO1] Prepare the 2009 common–base year balance sheet for Just Dew It.

15. **Preparing Standardized Financial Statements** [LO1] Prepare the 2009 combined common-size, common–base year balance sheet for Just Dew It.

16. **Sources and Uses of Cash** [LO4] For each account on this company's balance sheet, show the change in the account during 2009 and note whether this change was a source or use of cash. Do your numbers add up and make sense? Explain your answer for total assets as compared to your answer for total liabilities and owners' equity.
17. **Calculating Financial Ratios** [LO2] Based on the balance sheets given for Just Dew It, calculate the following financial ratios for each year:
    a. Current ratio.
    b. Quick ratio.
    c. Cash ratio.
    d. NWC to total assets ratio.
    e. Debt–equity ratio and equity multiplier.
    f. Total debt ratio and long-term debt ratio.

INTERMEDIATE
(Questions 18–30)

18. **Using the Du Pont Identity** [LO3] Y3K, Inc., has sales of $5,276, total assets of $3,105, and a debt–equity ratio of 1.40. If its return on equity is 15 percent, what is its net income?
19. **Days' Sales in Receivables** [LO2] A company has net income of $218,000, a profit margin of 8.70 percent, and an accounts receivable balance of $132,850. Assuming 70 percent of sales are on credit, what is the company's days' sales in receivables?
20. **Ratios and Fixed Assets** [LO2] The Ashwood Company has a long-term debt ratio of .45 and a current ratio of 1.25. Current liabilities are $875, sales are $5,780, profit margin is 9.5 percent, and ROE is 18.5 percent. What is the amount of the firm's net fixed assets?
21. **Profit Margin** [LO4] In response to complaints about high prices, a grocery chain runs the following advertising campaign: "If you pay your child $3 to go buy $50 worth of groceries, then your child makes twice as much on the trip as we do." You've collected the following information from the grocery chain's financial statements:

(millions)	
Sales	$750
Net income	22.5
Total assets	420
Total debt	280

    Evaluate the grocery chain's claim. What is the basis for the statement? Is this claim misleading? Why or why not?
22. **Return on Equity** [LO2] Firm A and firm B have debt–total asset ratios of 35% and 30% and returns on total assets of 12% and 11%, respectively. Which firm has a greater return on equity?
23. **Calculating the Cash Coverage Ratio** [LO2] Sherwood Inc.'s net income for the most recent year was $13,168. The tax rate was 34 percent. The firm paid $3,605 in total interest expense and deducted $2,382 in depreciation expense. What was the cash coverage ratio for the year?
24. **Cost of Goods Sold** [LO2] Holliman Corp. has current liabilities of $365,000, a quick ratio of .85, inventory turnover of 5.8, and a current ratio of 1.4. What is the cost of goods sold for the company?
25. **Ratios and Foreign Companies** [LO2] Prince Albert Canning PLC had a net loss of £13,482 on sales of £138,793 (both in thousands of pounds). What was the company's profit margin? Does the fact that these figures are quoted in a foreign currency make any difference? Why? In dollars, sales were $274,213,000. What was the net loss in dollars?

Some recent financial statements for Smolira Golf Corp. follow. Use this information to work Problems 26 through 30.

SMOLIRA GOLF
2008 and 2009 Balance Sheets

Assets	2008	2009	Liabilities and Owners' Equity	2008	2009
Current assets			Current liabilities		
Cash	$21,860	$ 22,050	Accounts payable	$ 19,320	$ 22,850
Accounts receivable	11,316	13,850	Notes payable	10,000	9,000
Inventory	23,084	24,650	Other	9,643	11,385
Total	$56,260	$ 60,550	Total	$ 38,963	$ 43,235
			Long-term debt	$ 75,000	$ 85,000
			Owners' equity		
			Common stock and paid-in surplus	$ 25,000	$ 25,000
Fixed assets			Accumulated retained earnings	151,365	167,840
Net plant and equipment	234,068	260,525	Total	$176,365	$192,840
Total assets	$290,328	$321,075	Total liabilities and owners' equity	$290,328	$321,075

SMOLIRA GOLF, Inc.
2009 Income Statement

Sales		$305,830
Cost of goods sold		210,935
Depreciation		26,850
Earnings before interest and taxes		$ 68,045
Interest paid		11,930
Taxable income		$ 56,115
Taxes (35%)		19,640
Net income		$ 36,475
Dividends	$20,000	
Retained earnings	16,475	

26. Calculating Financial Ratios [LO2] Find the following financial ratios for Smolira Golf Corp. (use year-end figures rather than average values where appropriate):

Short-term solvency ratios:

a. Current ratio ________________

b. Quick ratio ________________

c. Cash ratio ________________

Asset utilization ratios:

d. Total asset turnover ________________

e. Inventory turnover ________________

f. Receivables turnover ________________

Long-term solvency ratios:

g. Total debt ratio ____________________

h. Debt–equity ratio ____________________

i. Equity multiplier ____________________

j. Times interest earned ratio ____________________

k. Cash coverage ratio ____________________

Profitability ratios:

l. Profit margin ____________________

m. Return on assets ____________________

n. Return on equity ____________________

27. **Du Pont Identity** [LO3] Construct the Du Pont identity for Smolira Golf Corp.

28. **Statement of Cash Flows** [LO4] Prepare the 2009 statement of cash flows for Smolira Golf Corp.

29. **Market Value Ratios** [LO2] Smolira Golf Corp. has 25,000 shares of common stock outstanding, and the market price for a share of stock at the end of 2009 was $43. What is the price–earnings ratio? What are the dividends per share? What is the market-to-book ratio at the end of 2009? If the company's growth rate is 9 percent, what is the PEG ratio?

30. **Tobin's Q** [LO2] What is Tobin's Q for Smolira Golf? What assumptions are you making about the book value of debt and the market value of debt? What about the book value of assets and the market value of assets? Are these assumptions realistic? Why or why not?

MINICASE

Ratio Analysis at S&S Air, Inc.

Chris Guthrie was recently hired by S&S Air, Inc., to assist the company with its financial planning and to evaluate the company's performance. Chris graduated from college five years ago with a finance degree. He has been employed in the finance department of a *Fortune* 500 company since then.

S&S Air was founded 10 years ago by friends Mark Sexton and Todd Story. The company has manufactured and sold light airplanes over this period, and the company's products have received high reviews for safety and reliability. The company has a niche market in that it sells primarily to individuals who own and fly their own airplanes. The company has two models; the Birdie, which sells for $53,000, and the Eagle, which sells for $78,000.

Although the company manufactures aircraft, its operations are different from commercial aircraft companies. S&S Air builds aircraft to order. By using prefabricated parts, the company can complete the manufacture of an airplane in only five weeks. The company also receives a deposit on each order, as well as another partial payment before the order is complete. In contrast, a commercial airplane may take one and one-half to two years to manufacture once the order is placed.

Mark and Todd have provided the following financial statements. Chris has gathered the industry ratios for the light airplane manufacturing industry.

S&S AIR, INC. 2009 Income Statement		
Sales		$30,499,420
Cost of goods sold		22,224,580
Other expenses		3,867,500
Depreciation		1,366,680
EBIT		$ 3,040,660
Interest		478,240
Taxable income		$ 2,562,420
Taxes (40%)		1,024,968
Net income		$ 1,537,452
Dividends	$560,000	
Add to retained earnings	977,452	

S&S AIR, INC. 2006 Balance Sheet			
Assets		**Liabilities and Equity**	
Current assets		Current liabilities	
Cash	$ 441,000	Accounts payable	$ 889,000
Accounts receivable	708,400	Notes payable	2,030,000
Inventory	1,037,120	Total current liabilities	$ 2,919,000
Total current assets	$ 2,186,520		
		Long-term debt	$ 5,320,000
Fixed assets			
		Shareholder equity	
Net plant and equipment	$16,122,400	Common stock	$ 350,000
		Retained earnings	9,719,920
		Total equity	$10,069,920
Total assets	$18,308,920	Total liabilities and equity	$18,308,920

Light Airplane Industry Ratios	Lower Quartile	Median	Upper Quartile
Current ratio	.50	1.43	1.89
Quick ratio	.21	.38	.62
Cash ratio	.08	.21	.39
Total asset turnover	.68	.85	1.38
Inventory turnover	4.89	6.15	10.89
Receivables turnover	6.27	9.82	14.11
Total debt ratio	.44	.52	.61
Debt–equity ratio	.79	1.08	1.56
Equity multiplier	1.79	2.08	2.56
Times interest earned	5.18	8.06	9.83
Cash coverage ratio	5.84	8.43	10.27
Profit margin	4.05%	6.98%	9.87%
Return on assets	6.05%	10.53%	13.21%
Return on equity	9.93%	16.54%	26.15%

QUESTIONS

1. Using the financial statements provided for S&S Air, calculate each of the ratios listed in the table for the light aircraft industry.
2. Mark and Todd agree that a ratio analysis can provide a measure of the company's performance. They have chosen Boeing as an aspirant company. Would you choose Boeing as an aspirant company? Why or why not? There are other aircraft manufacturers S&S Air could use as aspirant companies. Discuss whether it is appropriate to use any of the following companies: Bombardier, Embraer, Cirrus Design Corporation, and Cessna Aircraft Company.
3. Compare the performance of S&S Air to the industry. For each ratio, comment on why it might be viewed as positive or negative relative to the industry. Suppose you create an inventory ratio calculated as inventory divided by current liabilities. How do you think S&S Air's ratio would compare to the industry average?