

## Financial Ratio Analysis

*A man who keeps all his property in the form of cash and government bonds has comparatively little to worry or think about; but on the other hand, he is not using his resources productively. As the same man proceeds with the development of some business enterprise, he puts more and more of his capital into the various forms of tangible and intangible assets which are required for the upbuilding of the business. Presently, if he is not careful, he may find himself short of cash and unable to meet his obligations, although he may be earning good profits.*

*The same tendency is present everywhere. The executives who are managing the financial affairs of a company cannot assist in making the business profitable merely by piling up unnecessary cash resources. They must be prepared to venture out into the main current of business affairs along with their associates. And as they venture farther and farther, the danger increases that their financial craft may be swept out of their control. It requires constant watchfulness and sound knowledge to steer a middle course between excessive caution on the one side and rashness in financial management on the other.*

—William H. Lough, *Business Finance*  
(New York: The Ronald Press Company, 1919), p. 500

**F**inancial analysis involves the selection, evaluation, and interpretation of financial data and other pertinent information to assist in evaluating the operating performance and financial condition of a company. The information that is available for analysis includes economic, market, and financial information. But some of the most important financial data are provided by the company in its annual and quarterly financial statements.

The operating performance of a company is a measure of how well a company has used its resources to produce a return on its investment. The financial condition of a company is a measure of its ability to satisfy its obligations, such as the payment of interest on its debt in a timely manner. An investor has many tools available in the analysis of financial information. These tools include financial ratio analysis and cash flow analysis. Cash flows provide a way of transforming net income based on an accrual system to a more comparable basis. Additionally, cash flows are essential ingredients in valuation because the value of a company today is the present value of its expected future cash flows. Therefore, understanding past and current cash flows may help in forecasting future cash flows and, hence, determine the value of the company. Moreover, understanding cash flow allows the assessment of the ability of a company to maintain current dividends and its current capital expenditure policy without relying on external financing.

In this chapter and the next, we describe and illustrate the basic tools of financial analysis. In this chapter, our focus is on financial ratio analysis. In the next chapter, we cover cash flow analysis.

## CLASSIFYING FINANCIAL RATIOS

A financial ratio is a comparison between one bit of financial information and another. Consider the ratio of current assets to current liabilities, which we refer to as the *current ratio*. This ratio is a comparison between assets that can be readily turned into cash—current assets—and the obligations that are due in the near future—current liabilities. A current ratio of 2, or 2:1, means that we have twice as much in current assets as we need to satisfy obligations due in the near future.

We can classify ratios according to the way they are constructed and the financial characteristic they are describing. For example, we will see that the current ratio is constructed as a coverage ratio (i.e., the ratio of current assets—available funds—to current liabilities, i.e., the obligation) that we use to describe a company's liquidity (its ability to meet its immediate needs). We can also classify ratios according to the dimension of the company's performance or condition. For example, a current ratio provides information on a company's liquidity, whereas a turnover ratio provides information on the effectiveness to which the company puts its asset to use.

There are as many different financial ratios as there are possible combinations of items appearing on the income statement, balance sheet, and statement of cash flows. We can classify ratios according to the financial characteristic that they capture.

When we assess a company's operating performance, a concern is whether the company is applying its assets in an efficient and profitable

manner. When an investor assesses a company's financial condition, a concern is whether the company is able to meet its financial obligations. The investor can use financial ratios to evaluate five aspects of operating performance and financial condition:

1. Liquidity
2. Profitability
3. Activity
4. Financial leverage
5. Return on investment

There are several ratios reflecting each of the five aspects of a company's operating performance and financial condition. We apply these ratios to the Exemplar Corporation, whose balance sheets, income statements, and statement of cash flows for two years we show in Exhibits 11.1, 11.2, and

#### EXHIBIT 11.1 Exemplar Corporation's Balance Sheets

In Millions	As of		
	Dec. 31, 20X2	Dec. 31, 20X1	Dec. 31, 20X0
Cash and cash equivalents	\$110	\$105	\$100
Accounts receivable	200	250	175
Inventory	490	510	500
Total current assets	\$800	\$865	\$775
Gross property, plant, and equipment	1,200	1,100	1,000
Accumulated depreciation	400	300	200
Net property, plant, and equipment	800	800	\$800
Intangible assets	50	50	50
Goodwill	75	75	75
Total assets	\$1,725	\$1,790	\$1,700
Accounts payable	\$100	\$90	\$100
Current portion of long-term debt	30	25	20
Total current liabilities	\$130	\$115	\$120
Long-term debt	163	319	\$300
Common stock	\$20	\$20	\$20
Paid-in capital in excess of par	100	100	100
Retained earnings	1,332	1,256	1,170
Treasury stock	20	20	10
Shareholders' equity	\$1,432	\$1,356	\$1,280
Total liabilities and equity	\$1,725	\$1,790	\$1,700

**EXHIBIT 11.2** Exemplar Corporation's Income Statements

In Millions	For the Year Ending	
	Dec. 31, 20X2	Dec. 31, 20X1
Revenues	\$2,000	\$1,900
Cost of goods sold	<u>1,600</u>	<u>1,500</u>
Gross profit	\$400	\$400
Selling, general, and administrative expenses	<u>200</u>	<u>180</u>
Earnings before interest and taxes	\$200	\$220
Interest expense	<u>17</u>	<u>16</u>
Earnings before taxes	\$183	\$204
Taxes	<u>73</u>	<u>82</u>
Net income	\$110	\$122

11.3, respectively. We refer to the most recent fiscal year for which financial statements are available, FY20X2, as the “current year.” The “prior year” is the fiscal year prior to the current year.

The ratios we introduce here are by no means the only ones that can be formed using financial data, though they are some of the more commonly

**EXHIBIT 11.3** Exemplar Corporation's Statement of Cash Flows

In Millions	For the Year Ending	
	Dec. 31, 20X2	Dec. 31, 20X1
Net income	\$110	\$122
Add: depreciation expense	100	100
Changes in working capital accounts		
Accounts receivable	50	−75
Inventory	20	−10
Accounts payable	<u>10</u>	<u>−10</u>
Cash flow for/from operations	\$290	\$127
Capital expenditures	−\$100	−\$100
Sale of property, plant and equipment	<u>0</u>	<u>0</u>
Cash flow for/from investment	−\$100	−\$100
Borrowings	\$0	\$25
Repayments of debt	−152	0
Dividends	33	37
Repurchase of stock	<u>0</u>	<u>10</u>
Cash flow for/ from financing	−\$185	−\$22
Change in cash	\$5	\$5

used. Further, when we form a ratio using a balance sheet account, such as inventory, we are simplifying things a bit because in applying these ratios to evaluate a company's performance we could more appropriately use an average of that balance sheet account through the year in some cases, rather than the year-end value. However, our primary purpose in this chapter is to establish the basic concepts, definitions, and calculations in financial ratio analysis before getting too technical.

## LIQUIDITY

*Liquidity* reflects the ability of a company to meet its short-term obligations using those assets that are most readily converted into cash. Assets that may be converted into cash in a short period of time are referred to as liquid assets; they are listed in financial statements as current assets. We often refer to current assets as *working capital*, because they represent the resources needed for the day-to-day operations of the company's long-term capital investments. Current assets are used to satisfy short-term obligations, or current liabilities. The amount by which current assets exceed current liabilities is referred to as the *net working capital*.

### Operating Cycle

How much liquidity a company needs depends on its operating cycle. The *operating cycle* is the duration from the time cash is invested in goods and services to the time that investment produces cash.

What does the operating cycle have to do with liquidity? The longer the operating cycle, the more current assets are needed (relative to current liabilities) since it takes longer to convert inventories and receivables into cash. In other words, the longer the operating cycle, the greater the amount of net working capital required.

We can estimate the operating cycle for Exemplar Corporation for the current year using the balance sheet and income statement data. The number of days Exemplar ties up funds in inventory is determined by the total amount of money represented in inventory and the average day's cost of goods sold. The current investment in inventory—that is, the money “tied up” in inventory—is the ending balance of inventory on the balance sheet. The *average day's cost of goods sold* is the cost of goods sold on an average day in the year, which can be estimated by dividing the cost of goods sold (which is found on the income statement) by the number of days in the year:

$$\text{Average day's cost of goods sold} = \frac{\text{Cost of goods sold}}{365} \quad (11.1)$$

Exemplar's average day's cost of goods sold for FY20X2 is  $\$1,600 \div 265 = \$4.384$  million per day.

Exemplar has \$490 million of inventory on hand at the end of the year. How many days' worth of goods sold is this? One way to look at this is to imagine that Exemplar stopped buying more raw materials and just finished producing whatever was on hand in inventory, using available raw materials and work-in-process. How long would it take Exemplar to run out of inventory?

We compute the *days sales in inventory* (DSI), also known as the *number of days of inventory*, by calculating the ratio of the amount of inventory on hand (in dollars) to the average day's cost of goods sold (in dollars per day):

$$\text{Days sales in inventory (DSI)} = \frac{\text{Inventory}}{\text{Average day's cost of goods sold}} \quad (11.2)$$

For Exemplar, the DSI is  $\$490 \text{ million} \div \$4.384 \text{ million} = 111.78$  days. In other words, Exemplar has approximately 112 days of goods on hand at the end of the current year. If sales continued at the same price, it would take Exemplar 112 days to run out of inventory.

We can extend the same logic for calculating the number of days between a sale—when an account receivable is created—and the time it is collected in cash. If we assume that Exemplar sells all goods on credit, we can first calculate the average credit sales per day and then calculate how many days' worth of credit sales are represented by the ending balance of receivables.

The *average credit sales per day* are the ratio of credit sales to the number of days in a year:

$$\text{Average credit sales per day} = \frac{\text{Credit sales}}{365} \quad (11.3)$$

If all of its sales are on credit, Exemplar generates  $\$2,000 \text{ million} \div 365 = \$5.479$  million of credit sales per day. The *days sales outstanding* (DSO), also known as the *number of days of credit*, in this ending balance is calculated by taking the ratio of the balance in the accounts receivable account to the credit sales per day:

$$\text{Days sales outstanding (DSO)} = \frac{\text{Accounts receivable}}{\text{Average credit sales per day}} \quad (11.4)$$

With an ending balance of accounts receivable of \$200 million and assuming all sales are on credit, Exemplar's DSO for FY20X2 is  $\$200 \text{ million} \div \$5.479 \text{ million} = 36.5$  days.

If the ending balance of receivables at the end of the year is representative of the receivables on any day throughout the year, then it takes, on average, approximately 36.5 days to collect the accounts receivable.

The operating cycle is the sum of the days sales in inventory and the days sales outstanding:

$$\text{Operating cycle} = \text{DSI} + \text{DSO} \quad (11.5)$$

Using what we have determined for the inventory cycle and cash cycle, we see that for Exemplar the operating cycle is  $111.78 + 36.5 = 148.281$  days.

We also need to look at the liabilities on the balance sheet to see how long it takes a company to pay its short-term obligations. We can apply the same logic to accounts payable as we did to accounts receivable and inventories. How long does it take a company, on average, to go from creating a payable (buying on credit) to paying for it in cash?

First, we need to determine the amount of an average day's purchases on credit. However, purchases are not identified on the financial statements, but instead we must infer this amount from accounts in both the income statement and the balance sheet. If we assume all the Exemplar purchases are made on credit and there was no change in the level of inventory, the total purchases for the year would be the cost of goods sold less any amounts included in cost of goods sold that are not purchases, such as depreciation. Because we do not have a breakdown on the company's cost of goods sold showing how much was paid for in cash and how much was on credit, we will assume that the following relationship holds for Exemplar:

$$\text{Beginning inventory} + \text{Purchases} = \left( \text{Cost of goods sold} - \text{Depreciation} \right) + \text{Ending inventory} \quad (11.6)$$

For Exemplar in FY20X2, we infer purchases of \$1,480 million. Therefore, the purchases per day are

$$\text{Average purchases per day} = \frac{\text{Annual purchases}}{365} \quad (11.7)$$

which for Exemplar are \$4.055 million.

The *days payables outstanding* (DPO), also known as the *number of days of purchases*, represented in the ending balance in accounts payable is

calculated as the ratio of the balance in the accounts payable account to the average day’s purchases:

$$\text{Days payables outstanding (DPO)} = \frac{\text{Accounts payable}}{\text{Average purchases per day}} \tag{11.8}$$

For Exemplar in the current year, the DPO is \$100 million ÷ \$4.055 million = 24.662 days. This means that on average Exemplar takes approximately 25 days to pay out cash for a purchase.

The operating cycle is how long it takes to convert an investment in cash back into cash (by way of inventory and accounts receivable). The number of days of payables tells us how long it takes to pay on purchases made to create the inventory. If we put these two pieces of information together, we can see how long, on net, we tie up cash. The difference between the operating cycle and the number of days of purchases is the *cash conversion cycle* (CCC), also known as the *net operating cycle*:

$$\text{Cash conversion cycle} = \text{DSI} + \text{DSO} - \text{DPO} \tag{11.9}$$

For Exemplar’s FY20X2,

$$\text{Cash conversion cycle} = 11.781 + 36.500 - 24.662 = 123.619 \text{ days}$$

The cash conversion cycle is how long it takes for the company to get cash back from its investments in inventory and accounts receivable, considering that purchases may be made on credit. By not paying for purchases immediately (that is, using trade credit), the company reduces its liquidity needs. Therefore, the longer the net operating cycle, the greater the required liquidity.



**TRY IT! THE OPERATING CYCLE**

Complete the following using Exemplar Corporation’s FY20X1 financial statements:

Days sales outstanding	
Days sales in inventory	
Days purchases outstanding	
Operating cycle	
Cash conversion cycle	



## Measures of Liquidity

We can describe a company's ability to meet its current obligations in several ways. We can form the current ratio, which is one of the most commonly used measures of liquidity:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} \quad (11.10)$$

The current ratio is an indication of how many times the company can cover its current liabilities, using its current assets. Exemplar's current ratio for FY20X2 is \$800 million ÷ \$130 = 6.154 times.

Another liquidity measure is the quick ratio, which is similar to the current ratio, except we remove the least liquid of the current assets from the numerator:

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}} \quad (11.11)$$

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The two-for-one ratio of quick assets to current liabilities does not have to be explained in detail because its use is so general in statement analysis. It is the first step toward establishing a student in proportions. Its adoption as a test resulted from the certain knowledge, acquired by bitter experience, that a shrinkage might easily occur in asset, but rarely in liabilities.

—Robert Morris Associates, Financial Statements,  
An Explanation in Brief of a New System for Their  
Analysis from the Standpoint of the Credit Grantor  
and Business Executive, 1921

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By leaving out the least liquid asset, the quick ratio provides a more conservative view of liquidity. The quick ratio is also known as the *acid test ratio*. For Exemplar in the current year, the quick ratio is 2.385 times.

Still another way to measure the company's ability to satisfy short-term obligations is the *net working capital-to-sales ratio*, which compares net working capital (current assets less current liabilities) with sales:

$$\text{Net working capital to sales} = \frac{\text{Net working capital}}{\text{Revenues}} \quad (11.12)$$

This ratio tells us the “cushion” available to meet short-term obligations relative to sales. Consider two companies with identical working capital of \$100,000, but one has sales of \$500,000 and the other sales of \$1,000,000.

If they have identical operating cycles, this means that the company with the greater sales has more funds flowing in and out of its current asset investments (inventories and receivables). The company with more funds flowing in and out needs a larger cushion to protect itself in case of a disruption in the cycle, such as a labor strike or unexpected delays in customer payments. The longer the operating cycle, the more of a cushion (i.e., net working capital) a company needs for a given level of sales.

For Exemplar Corporation, the net working capital to sales ratio for FY20X2 is

$$\text{Net working capital to sales} = \frac{\$800 \text{ million} - 130 \text{ million}}{\$2,000 \text{ million}} = 0.335$$

The ratio of 0.335 tells us that for every dollar of sales, Exemplar has 33.5 cents of net working capital to support it.

Given the measures of time related to the current accounts—the operating cycle and the cash conversion cycle—and the three measures of liquidity—current ratio, quick ratio, and net working capital-to-sales ratio—we know the following about Exemplar Corporation’s ability to meet its short-term obligations:

- Inventory is less liquid than accounts receivable (comparing days of inventory with days of credit).
- Current assets are greater than needed to satisfy current liabilities in a year (from the current ratio).
- The quick ratio tells us that Exemplar can meet its short-term obligations even without resorting to selling inventory.
- The net working capital “cushion” is 33.5 cents for every dollar of sales (from the net working capital-to-sales ratio.)

Unfortunately, these liquidity ratios don’t provide us with answers to the following questions:

- How liquid are the accounts receivable? How much of the accounts receivable will be collectible? Whereas we know it takes, on average, 36.5 days to collect, we do not know how much will never be collected.
- What is the nature of the current liabilities? How much of current liabilities consists of items that recur (such as accounts payable and wages payable) each period and how much consists of occasional items (such as income taxes payable)?
- Are there any unrecorded liabilities (such as operating leases) that are not included in current liabilities?



### TRY IT! LIQUIDITY RATIOS

Complete the following using Exemplar Corporation's FY20X1 financial statements:

Current ratio	
Quick ratio	
Net working capital to sales	

### PROFITABILITY RATIOS

Liquidity ratios indicate a company's ability to meet its immediate obligations. Now we extend the analysis by adding *profitability ratios*, which help the investor gauge how well a company is managing its expenses. *Profit margin ratios* compare components of income with sales. They give the investor an idea of which factors make up a company's income and are usually expressed as a portion of each dollar of sales. For example, the profit margin ratios we discuss here differ only in the numerator. It is in the numerator that we can evaluate performance for different aspects of the business.

For example, suppose the investor wants to evaluate how well production facilities are managed. The investor would focus on gross profit (revenues less cost of goods sold), a measure of income that is the direct result of production management. Comparing gross profit with sales produces the *gross profit margin*:

$$\text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Revenues}} \quad (11.13)$$

This ratio tells us the portion of each dollar of sales that remains after deducting production expenses. For Exemplar Corporation for the current year,

$$\text{Gross profit margin} = \frac{\$400 \text{ million}}{\$2,000 \text{ million}} = 20\%$$

For each dollar of revenues, the company's gross profit is 35 cents. Looking at sales and cost of goods sold, we can see that the gross profit margin is affected by:

- Changes in sales volume, which affect cost of goods sold and sales.
- Changes in sales price, which affect revenues.
- Changes in the cost of production, which affect cost of goods sold.

Any change in gross profit margin from one period to the next is caused by one or more of those three factors. Similarly, differences in gross margin ratios among companies are the result of differences in those factors.

To evaluate operating performance, we need to consider operating expenses in addition to the cost of goods sold. To do this, remove operating expenses (e.g., selling and general administrative expenses) from gross profit, leaving operating profit, also referred to as *earnings before interest and taxes*. Therefore, the *operating profit margin* is

$$\text{Operating profit margin} = \frac{\text{Operating profit}}{\text{Revenues}} \quad (11.14)$$

For Exemplar in the current year, the operating profit margin is 10%. Therefore, for each dollar of revenues, Exemplar has 10 cents of operating income. The operating profit margin is affected by the same factors as gross profit margin, plus operating expenses.

Both the gross profit margin and the operating profit margin reflect a company's operating performance. But they do not consider how these operations have been financed. To evaluate both operating and financing decisions, the investor must compare net income (that is, earnings after deducting interest and taxes) with revenues. The result is the *net profit margin*:

$$\text{Net profit margin} = \frac{\text{Net profit}}{\text{Revenues}} \quad (11.15)$$

The net profit margin is the net income generated from each dollar of revenues; it considers financing costs that the operating profit margin does not consider. For Exemplar for the current year, the net profit margin is 5.484%. In other words, for every dollar of revenues, Exemplar generates 5.484 cents in net profits.

The profitability ratios indicate the following about the operating performance of Exemplar for FY20X2:

- Each dollar of revenues contributes 20 cents to gross profit and 10 cents to operating profit.
- Every dollar of revenues contributes 5.484 cents to owners' earnings.
- By comparing the 20 cents operating profit margin with the 5.484 cents net profit margin, we see that Exemplar has a little more than 14 cents of financing costs for every dollar of revenues.

What these ratios do not indicate about profitability is the sensitivity of gross, operating, and net profit margins to changes in the sales price and changes in the volume of sales.

Looking at the profitability ratios for one company for one period gives the investor very little information that can be used to make judgments regarding future profitability. Nor do these ratios provide the investor any information about why current profitability is what it is. We need more information to make these kinds of judgments, particularly regarding the future profitability of the company. For that, turn to activity ratios, which are measures of how well assets are being used.



### TRY IT! PROFITABILITY RATIOS

Complete the following using Exemplar Corporation's FY20X1 financial statements:

Gross profit margin	
Operating profit margin	
Net profit margin	

### ACTIVITY RATIOS

We use *activity ratios*—for the most part, turnover ratios—to evaluate the benefits produced by specific assets, such as inventory or accounts receivable, or to evaluate the benefits produced by the totality of the company's assets.

## Inventory management

The *inventory turnover ratio* is a measure of how quickly a company has used inventory to generate the goods and services that are sold. The inventory turnover is the ratio of the cost of goods sold to inventory:

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventory}} \quad (11.16)$$

For Exemplar for the current year, the inventory turnover is 3.265 times.

This ratio indicates that Exemplar turns over its inventory 3.265 times per year. On average, cash is invested in inventory, goods and services are produced, and these goods and services are sold 3.265 times a year. Looking back to the number of days of inventory, we see that this turnover measure is consistent with the results of that calculation: There are 111.78 calendar days of inventory on hand at the end of the year; dividing 365 days by 111.78 days, we find that inventory cycles through (that is, from cash to sales) 3.265 times a year.

## Accounts Receivable Management

In much the same way inventory turnover can be evaluated, an investor can evaluate a company's management of its accounts receivable and its credit policy. The *accounts receivable turnover ratio* is a measure of how effectively a company is using credit extended to customers. The reason for extending credit is to increase sales. The downside to extending credit is the possibility of default—customers not paying when promised. The benefit obtained from extending credit is referred to as net credit sales—sales on credit less returns and refunds.

$$\text{Accounts receivable turnover} = \frac{\text{Credit sales}}{\text{Accounts receivable}} \quad (11.17)$$

Looking at the Exemplar Corporation income statement, we see an entry for revenues, but we do not know how much of the amount stated is on credit. In the case of evaluating a company, an investor would have an estimate of the amount of credit sales. Let us assume that the entire sales amount represents net credit sales. For Exemplar for the current year, the accounts receivable turnover is \$2,000 million ÷ \$200 million = 10 times. Therefore, 10 times in the year there is, on average, a cycle that begins with a sale on credit and finishes with the receipt of cash for that sale.

The number of times accounts receivable cycle through the year is consistent with the days sales outstanding (36.5 days) that we calculated earlier—accounts receivable turn over 10 times during the year, and the average number of days of sales in the accounts receivable balance is  $365 \text{ days} \div 10 \text{ times} = 36.5 \text{ days}$ .

## Overall Asset Management

The inventory and accounts receivable turnover ratios reflect the benefits obtained from the use of specific assets (inventory and accounts receivable). For a more general picture of the productivity of the company, an investor can compare the sales during a period with the total assets that generated these revenues.

One way is with the *total asset turnover ratio*, or simply the *asset turnover*, which is how many times during the year the value of a company's total assets is generated in revenues:

$$\text{Total asset turnover} = \frac{\text{Revenues}}{\text{Total assets}} \quad (11.18)$$

For Exemplar in the current year, the total asset turnover is  $\$2,000 \text{ million} \div \$1,175 = 1.159 \text{ times}$ .

The turnover ratio of 1.159 indicated that in the current year, every dollar invested in total assets generates \$1.159 of revenues. Because total assets include both tangible and intangible assets, this turnover indicates how efficiently all assets were used.

From these ratios the investor can determine that:

- Inventory flows in and out almost 3.3 times a year (from the inventory turnover ratio).
- Accounts receivable are collected in cash, on average, 36.5 days after a sale (from the number of days of credit). In other words, accounts receivable flow in and out almost 10 times during the year (from the accounts receivable turnover ratio).

But what these ratios do not indicate about the company's use of its assets:

- The sales not made because credit policies are too stringent.
- How much of credit sales is not collectible.
- Which assets contribute most to the total asset turnover.



**TRY IT! ACTIVITY RATIOS**

Complete the following using Exemplar Corporation’s FY20X1 financial statements:

	Turnover	Number of days	Product of the turnover and the number of days
Inventory			
Accounts receivable			

**FINANCIAL LEVERAGE**

A company can finance its assets with equity or with debt. Financing with debt legally obligates the company to pay interest and to repay the principal as promised. Equity financing does not obligate the company to pay anything because dividends are paid at the discretion of the board of directors. There is always some risk, which we refer to as *business risk*, inherent in any business enterprise. But how a company chooses to finance its operations—the particular mix of debt and equity—may add financial risk on top of business risk. *Financial risk* is risk associated with a company’s ability to satisfy its debt obligations, and is often measured using the extent to which debt financing is used relative to equity.

We use financial leverage ratios to assess how much financial risk the company has taken on. There are two types of financial leverage ratios: component percentages and coverage ratios. Component percentages compare a company’s debt with either its total capital (debt plus equity) or its equity capital. Coverage ratios reflect a company’s ability to satisfy fixed financing obligations, such as interest, principal repayment, or lease payments.

**Component Percentage Ratios**

A ratio that indicates the proportion of assets financed with debt is the *debt-to-assets ratio*, which compares total liabilities (Short-term debt + Long-term debt) with total assets:

$$\text{Debt to assets} = \frac{\text{Debt}}{\text{Total assets}} \tag{11.19}$$

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For Exemplar in the current year, the debt to assets is 16.959%. This ratio indicates that 16.959% of the company's assets are financed with debt (both short term and long term).

Another way to look at the financial risk is in terms of the use of debt relative to the use of equity. The *debt-to-equity ratio*, or simply the *debt-equity ratio*, is a measure how the company finances its operations with debt relative to the book value of its shareholders' equity:

$$\text{Debt to equity} = \frac{\text{Debt}}{\text{Shareholders' equity}} \quad (11.20)$$

Shareholders' equity is the book value, or carrying value, of shareholders' equity as reported on the company's balance sheet. For Exemplar for FY20X2, the debt to equity ratio is  $(\$130 \text{ million} + 163 \text{ million}) \div \$1,432 \text{ million}$  or 0.204. For every one dollar of book value of shareholders' equity, Exemplar uses 20.4 cents of debt.

Both of these ratios can be stated in terms of total debt, as above, or in terms of long-term debt or even simply interest-bearing debt. And it is not always clear in which form—total, long-term debt, or interest-bearing—the ratio is calculated. Additionally, it is often the case that the current portion of long-term debt is excluded in the calculation of the long-term versions of these debt ratios.

One problem with using a financial ratio based on the book value of equity to analyze financial risk is that there is seldom a strong relationship between the book value and market value of a stock. The distortion in values on the balance sheet is obvious by looking at the book value of equity and comparing it with the market value of equity. The book value of equity consists of:

- The proceeds to the company of all the stock issues since it was first incorporated, less any stock repurchased by the company.
- The accumulative earnings of the company, less any dividends, since it was first incorporated.

The book value of equity generally does not give a true picture of the investment of shareholders in the company because:

- Earnings are recorded according to accounting principles, which may not reflect the true economics of transactions.
- Due to inflation, the earnings and proceeds from stock issued in the past do not reflect today's values.

In other words, the book value often understates the value of shareholders' equity.

The market value of equity, on the other hand, is the value of equity as perceived by investors. It is what investors are willing to pay. So why bother with book value? For two reasons: First, if the company is not publicly traded, it is easier to obtain the book value than the market value of a company's securities. Second, many financial services report ratios using book value rather than market value. However, you can easily restate any of the ratios presented in this chapter that use the book value of equity using the market value of equity.

### Coverage Ratios

The ratios that compare debt to equity or debt to assets indicate the amount of financial leverage, which enables an investor to assess the financial condition of a company. Another way of looking at the financial condition and the amount of financial leverage used by the company is to see how well it can handle the financial burdens associated with its debt or other fixed commitments.

One measure of a company's ability to handle financial burdens is the *interest coverage ratio*, also referred to as the *times interest-covered ratio*. This ratio tells us how well the company can cover or meet the interest payments associated with debt. The ratio compares the funds available to pay interest (that is, earnings before interest and taxes) with the interest expense:

$$\text{Interest coverage ratio} = \frac{\text{EBIT}}{\text{Interest expense}} \quad (11.21)$$

The greater the interest coverage ratio, the better able the company is to pay its interest expense. For Exemplar for the current year, the interest coverage ratio is \$200 million ÷ \$17 million = 11.617 times. An interest coverage ratio of 11.617 times means that the company's earnings before interest and taxes are 11.617 times greater than its interest payments.

The interest coverage ratio provides information about a company's ability to cover the interest related to its debt financing. However, there are other costs that do not arise from debt but that nevertheless must be considered in the same way we consider the cost of debt in a company's financial obligations. For example, lease payments are fixed costs incurred in financing operations. Like interest payments, they represent legal obligations. We could also consider another fixed charge, such as preferred stock dividends,

which the company must pay before a company pays any common stock dividends.<sup>1</sup>

Up to now, we considered earnings before interest and taxes as funds available to meet fixed financial charges. EBIT includes noncash items such as depreciation and amortization. If an investor is trying to compare funds available to meet obligations, a better measure of available funds is cash flow from operations, as reported in the statement of cash flows. A ratio that considers cash flows from operations as funds available to cover interest payments is referred to as the *cash flow interest coverage ratio*:

$$\text{Cash flow interest coverage} = \frac{\text{Cash flow from operations} + \text{Interest} + \text{Taxes}}{\text{Interest}} \quad (11.22)$$

We take the amount of cash flow from operations that is in the statement of cash flows is net of interest and taxes. Therefore, we must add back interest and taxes to cash flow from operations to arrive at the cash flow amount before interest and taxes in order to determine the cash flow available to cover interest payments.

For Exemplar for the current year, the cash flow interest coverage is

$$\text{Cash flow interest coverage} = \frac{\$290 \text{ million} + 17 \text{ million} + 73 \text{ million}}{\$17 \text{ million}} = 22.565$$

This coverage ratio indicates that, in terms of cash flows, Exemplar has 22.565 times more cash than is needed to pay its interest. This is a better picture of interest coverage than the 11.617 times reflected by EBIT. Why the difference? Because cash flow considers not just the accounting income, but noncash items as well. In the case of Exemplar, depreciation is a noncash charge that reduced EBIT but not cash flow from operations—it is added back to net income to arrive at cash flow from operations.

These ratios indicate that Exemplar uses its financial leverage as follows:

- Assets are 17% financed with debt, measured using book values.
- Long-term debt is approximately 20% of equity.

<sup>1</sup>When we alter the interest coverage ratio to consider these other fixed obligations, we alter the numerator as well to restate it to reflect the funds available to cover these obligations.

These ratios do not indicate:

- What other fixed, legal commitments the company has that we cannot see by simply looking at the balance sheet (for example, operating leases).
- What the intentions of management are regarding taking on more debt as the existing debt matures.



**TRY IT! FINANCIAL LEVERAGE RATIOS**

Complete the following using Exemplar Corporation’s FY20X1 financial statements:

Debt to assets	
Debt to equity	
Interest coverage ratio	
Cash flow interest coverage	

**RETURN ON INVESTMENT**

*Return-on-investment ratios* compare measures of benefits, such as earnings or net income, with measures of investment. For example, if an investor wants to evaluate how well the company uses its assets in its operations, he could calculate the return on assets—sometimes called the *basic earning power ratio*—as the ratio of earnings before interest and taxes (also known as operating earnings) to total assets:

$$\text{Basic earning power} = \frac{\text{Earnings before interest and taxes}}{\text{Total assets}} \tag{11.23}$$

For Exemplar Corporation, for the current year, the basic earning power ratio is \$110 million ÷ \$1,725 million = 11.594%. This means that for every dollar invested in assets, Exemplar earned about 11.6 cents in the current year. This measure deals with earnings from operations; it does not consider how these operations are financed.

Another return-on-assets ratio uses net income—operating earnings less interest and taxes—instead of earnings before interest and taxes. This is the more commonly used return on assets ratio:

$$\text{Return on assets} = \frac{\text{Net income}}{\text{Total assets}} \quad (11.24)$$

For Exemplar in the current year, the return on assets is \$110 million ÷ \$1,725 million = 6.358%.

Thus, without taking into consideration how assets are financed, the return on assets for Exemplar is 11.594%. Taking into consideration how assets are financed, the return on assets is 6.358%. The difference is due to Exemplar financing part of its total assets with debt, incurring interest of \$17 million in the current year.

If we look at Exemplar's liabilities and equities, we see that the assets are financed by both liabilities and equity. Investors may not be interested in the return the company gets from its total investment (debt plus equity), but rather shareholders are interested in the return the company can generate on their investment. The *return on equity* is the ratio of the net income shareholders receive to their equity in the stock:

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Shareholders' equity}} \quad (11.25)$$

For Exemplar Corporation, there is only one type of shareholder: common. For the current year, the return on equity is \$110 million ÷ \$1,725 million = 7.656%.

## THE DUPONT SYSTEM

The returns-on-investment ratios provide a “bottom line” on the performance of a company, but do not tell us anything about the “why” behind this performance. For an understanding of the “why,” an investor must dig a bit deeper into the financial statements. A method that is useful in examining the source of performance is the DuPont system.

The *DuPont system* is a method of breaking down return ratios into their components to determine which areas are responsible for a company's performance. To see how it is used, let us take a closer look at the first definition of the basic earning power in equation (11.23). We can break down this ratio into its components: profit margin and activity. We do this by relating both the numerator and the denominator to sales activity. Divide

both the numerator and the denominator of the basic earning power ratio by revenues, which produces

$$\text{Basic earning power} = \frac{\text{EBIT}}{\text{Revenues}} \times \frac{\text{Revenues}}{\text{Total assets}}$$

In other words, the earning power of the company is related to profitability (in this case, operating profit or EBIT) and a measure of activity (Total asset turnover = Revenues/Total assets):

$$\text{Basic earning power} = \frac{\text{Operating profit margin}}{\text{profit margin}} \times \frac{\text{Total asset turnover}}{\text{turnover}}$$

Therefore, when analyzing a change in the company's basic earning power, an investor could look at this breakdown to see the change in its components: operating profit margin and total asset turnover.

Let's look at the return on assets of Exemplar for the two years. Its returns on assets were 20% in the prior year and 18.18% in the current year. We can decompose the company's returns on assets for the two years to obtain:

$$\text{FY20X2: } 11.594\% = \frac{\$200}{\$2,000} \times \frac{\$2,000}{\$1,725} = 10\% \times 1.1594$$

$$\text{FY20X1: } 12.291\% = \frac{\$180}{\$1,090} \times \frac{\$1,900}{\$1,790} = 11.579\% \times 1.0615$$

We see that operating profit margin declined over the two years, yet asset turnover improved slightly. Therefore, the decline in the return-on-assets is attributable to lower profit margins.

We can break down the return on assets and the return on equity into components in a similar manner. Expanding equation (11.24),

$$\text{Return on assets} = \frac{\text{Net income}}{\text{Revenues}} \times \frac{\text{Revenues}}{\text{Total assets}} = \frac{\text{Net profit margin}}{\text{margin}} \times \frac{\text{Total asset turnover}}{\text{turnover}}$$

Recognizing the accounting relationship between operating profit and net income, and letting EBT = EBIT – interest, then

$$\frac{\text{Net income}}{\text{Revenues}} = \frac{\text{EBIT}}{\text{Revenues}} \times \frac{\text{EBT}}{\text{EBIT}} \times (1 - \text{Tax rate})$$

and, therefore,

$$\text{Return on assets} = \frac{\text{EBIT}}{\text{Revenues}} \times \frac{\text{EBT}}{\text{EBIT}} \times (1 - \text{Tax rate}) \times \frac{\text{Revenues}}{\text{Total assets}}$$

In other words, the return on assets is:

- Positively related to the operating profit margin, EBIT/Revenues.
- Negatively related to the amount of interest, relative to earnings (the greater the interest, the lower is EBT/EBIT).
- Negatively related to the tax rate.
- Positively related to the asset turnover.

The breakdown of a return-on-equity ratio from equation (11.25) requires a bit more decomposition because instead of total assets as the denominator, the denominator in the return is shareholders' equity. Because activity ratios reflect the use of all of the assets, not just the proportion financed by equity, we need to adjust the activity ratio by the proportion that assets are financed by equity (i.e., the ratio of the book value of shareholders' equity to total assets):

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

Identifying the ratio of total assets to shareholders' equity as the equity multiplier, which captures the company's financial leverage, we can rephrase return on equity as

$$\text{Return on equity} = \text{Return on assets} \times \text{Equity multiplier}$$

If we substitute the breakdown of the return on assets into this equation for the return on equity, we have

$$\begin{aligned} \text{Return on equity} &= \left[ \frac{\text{EBIT}}{\text{Revenues}} \times \frac{\text{EBT}}{\text{EBIT}} \times (1 - \text{Tax rate}) \times \frac{\text{Revenues}}{\text{Total assets}} \right] \\ &\quad \times \frac{\text{Total assets}}{\text{Shareholders' equity}} \end{aligned}$$

In other words, the return on equity is a function of operating profit, the company's interest burden, the tax rate, asset utilization, and financial leverage. Applying this to Exemplar for FY20X2,

$$\text{Return on equity} = 0.010 \times 0.914 \times (1 - 0.4) \times 1.159 \times 1.204 = 7.656\%$$



**TRY IT! BREAKING DOWN THE RETURN ON EQUITY**

Complete the following using Exemplar Corporation’s FY20X1 financial statements:

Return on equity	
Basic earning power ratio	
Operating profit margin	
EBT/EBIT	
Tax rate	
Equity multiplier	

**COMMON-SIZE ANALYSIS**

An investor can evaluate a company’s operating performance and financial condition through ratios that relate various items of information contained in the financial statements. Another way to analyze a company is to look at its financial data more comprehensively.

*Common-size analysis* is a method of analysis in which the components of a financial statement are compared. In the vertical common-size analysis, each financial statement item is compared to a benchmark item for that same year. The first step in this form of common-size analysis is to break down a financial statement—either the balance sheet or the income statement—into its parts. The next step is to calculate the proportion that each item represents relative to some benchmark. In the case of a vertical common size analysis of the balance sheet, the benchmark is total assets; in the case of the income statement, the benchmark is revenues.

Another form of common-size analysis is *horizontal common-size analysis*, in which we use either an income statement or a balance sheet in a fiscal year and compare accounts to the corresponding items in another year.

Let us see how it works by doing some common-size financial analysis for the Exemplar Corporation. In the income statement, as with the balance sheet, the items may be restated as a proportion of sales; this statement is referred to as the common-size income statement. We provide the



**EXHIBIT 11.4** Exemplar Corporation's Vertical Common-Size Income Statements

	For Year Ending	
	Dec. 31, 20X2	Dec. 31, 20X1
Revenues	100%	100%
Cost of goods sold	80%	79%
Gross profit	20%	21%
Selling, general, and administrative expenses	10%	9%
Earnings before interest and taxes	10%	12%
Interest expense	1%	1%
Earnings before taxes	9%	11%
Taxes	4%	4%
Net income	5%	6%

common-size income statements for Exemplar for the two years in Exhibit 11.4. For the current year, the major costs are associated with goods sold (80%). Looking at gross profit, EBIT, and net income, these proportions are the profit margins we calculated earlier. Using the common-size income statement, we learn about the profitability of different aspects of the company's business. Again, the picture is not yet complete. For a more complete picture, the investor must look at trends over time and make comparisons with other companies in the same industry.

We restate the company's balance sheet in Exhibit 11.5. This statement does not look precisely like the balance sheet we have seen before. Nevertheless, the data are the same but reorganized. Each item in the original balance sheet has been restated as a proportion of total assets for that year. Hence, we refer to this as the *common-size balance sheet*.

In this common-size balance sheet, we see, for example, that in the current year cash is 6% of total assets. The largest investment is in plant and equipment, which comprises 46% of total assets. On the liabilities side, current liabilities are 8% of liabilities and equity. Using the common-size balance sheet, we can see, in very general terms, how Exemplar has raised capital and where this capital has been invested. As with financial ratios, however, the picture is not complete until trends are examined and compared with those of other companies in the same industry.

We provide a horizontal common-size analysis for Exemplar's balance sheet in Exhibit 11.6. In this analysis, we see that current and total assets have declined since FY20X1, the company is using less long-term debt, and equity has increased. If we wanted to look at relative trends, we could carry this out over 5 or 10 fiscal periods.

**EXHIBIT 11.5** Exemplar Corporation's Vertical Common-Size Balance Sheets

	As of	
	Dec. 31, 20X2	Dec. 31, 20X1
Cash and cash equivalents	6%	6%
Accounts receivable	12%	14%
Inventory	28%	28%
Total current assets	46%	48%
Gross property, plant, and equipment	70%	61%
Accumulated depreciation	23%	17%
Net property, plant, and equipment	46%	45%
Intangible assets	3%	3%
Goodwill	4%	4%
Total assets	100%	100%
Accounts payable	6%	5%
Current portion of long-term debt	2%	1%
Total current liabilities	8%	6%
Long-term debt	9%	18%
Common stock	1%	1%
Paid-in capital in excess of par	6%	6%
Retained earnings	77%	70%
Treasury stock	1%	1%
Shareholders' equity	83%	76%
Total liabilities and equity	100%	100%

*Note:* Each account is divided by total assets. For example, FY20X2 inventory of \$490 million, divided by total assets of \$1,725, results in 28.41%.

## USING FINANCIAL RATIO ANALYSIS

Financial analysis provides information concerning a company's operating performance and financial condition. This information is useful for an investor in evaluating the performance of the company as a whole, as well as of divisions, products, and subsidiaries. An investor must also be aware that financial analysis is also used by investors and investors to gauge the financial performance of the company.

But financial ratio analysis cannot tell the whole story and must be interpreted and used with care. Financial ratios are useful but, as noted in the discussion of each ratio, there is information that the ratios do not reveal. For example, in calculating inventory turnover we need to assume that the inventory shown on the balance sheet is representative of inventory

**EXHIBIT 11.6** Exemplar Corporation's Horizontal Common-Size Analysis  
Balance Sheet (*base year is fiscal year 20X1*)

	Dec. 31, 20X2	Dec. 31, 20X1
Cash and cash equivalents	105%	100%
Accounts receivable	80%	100%
Inventory	96%	100%
Total current assets	92%	100%
Gross property, plant, and equipment	109%	100%
Accumulated depreciation	133%	100%
Net property, plant, and equipment	100%	100%
Intangible assets	100%	100%
Goodwill	100%	100%
Total assets	96%	100%
Accounts payable	111%	100%
Current portion of long-term debt	120%	100%
Total current liabilities	113%	100%
Long-term debt	51%	100%
Common stock	100%	100%
Paid-in capital in excess of par	100%	100%
Retained earnings	106%	100%
Treasury stock	100%	100%
Shareholders' equity	106%	100%
Total liabilities and equity	96%	100%

*Note:* Each account in Y20X2 is divided by the account's value in FY20X1. For example, the FY20X2 inventory divided by FY20X1 inventory, \$490 million ÷ 510 million, is 96.08%.

throughout the year. Another example is in the calculation of accounts receivable turnover. We assumed that all sales were on credit. If we are on the outside looking in—that is, evaluating a company based on its financial statements only, such as the case of a financial investor or investor—and, therefore, do not have data on credit sales, assumptions must be made that may or may not be correct.

In addition, there are other areas of concern that an investor should be aware of in using financial ratios:

- Limitations in the accounting data used to construct the ratios.
- Selection of an appropriate benchmark company or companies for comparison purposes.
- Interpretation of the ratios.

- Pitfalls in forecasting future operating performance and financial condition based on past trends.

THE BOTTOM LINE

- Financial ratios are useful in evaluating the operating performance and financial condition of a company. With ratios, we can examine a company’s liquidity, profitability, and efficiency in putting its assets to use, as well as its ability to meet its debt obligations.
- Liquidity reflects the ability of a company to meet its short-term obligations using those assets that are most readily converted into cash. Two of the most commonly used liquidity ratios are the current ratio and the quick ratio.
- Profitability ratios help investors gauge how well a company is managing its expenses. Profit margin ratios compare components of income with sales.
- Activity ratios help investors and analysts evaluate the benefits produced by specific assets, such as inventory or accounts receivable, or evaluate the benefits produced by the totality of the company’s assets. For the most part, activity ratios are turnover ratios.
- Financial leverage ratios aid investors and analysts in assessing the exposure of the company to financial risk. There are two types of financial leverage ratios: component percentages and coverage ratios.
- Return-on-investment ratios provide investors and analysts with a way to compare measures of benefits, such as earnings or net income, with measures of investment.
- We can break down overall performance measures, such as the return on assets, into components using the DuPont system. This breakdown is useful in examining the drivers to changes in returns.
- We can use common-size analysis to examine relative changes in accounts over time, either using horizontal analysis or vertical analysis.

SOLUTIONS TO TRY IT! PROBLEMS

The Operating Cycle

Days sales outstanding	124.1
Days sales in inventory	48.026
Days purchases outstanding	23.298
Operating cycle	172.126
Cash conversion cycle	148.828

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**Liquidity Ratios**

Current ratio	7.522
Quick ratio	3.087
Net working capital to sales	0.395

**Profitability Ratios**

Gross profit margin	21.053%
Operating profit margin	11.579%
Net profit margin	6.442%

**Activity Ratios**

	Turnover	Number of Days	Product of the Turnover and the Number of Days
Inventory	2.941	124.100	365
Accounts receivable	7.600	48.036	365

**Financial Leverage Ratios**

Debt to assets	24.264%
Debt to equity	0.320
Interest coverage ratio	13.75
Cash flow interest coverage	8.963

**Breaking Down the Return on Equity**

Return on equity	9.029%
Basic earning power ratio	12.291%
Operating profit margin	11.579%
EBT/EBIT	0.927
Tax rate	40%
Equity multiplier	1.320

**QUESTIONS**

1. What is the relation between a company's current ratio and its quick ratio?
2. What is the relation between the cash conversion cycle and a company's need for liquidity?

- 3. Can a company's cash conversion cycle ever be negative? Explain.
- 4. What is the relation between a company's inventory turnover and the number of days' inventory?
- 5. If a company has a return on assets of 10% and a net profit margin of 5%, what is the company's total asset turnover?
- 6. If a company has a debt-to-assets ratio of 35%, what is the company's debt-to-equity ratio?
- 7. If a company's use of debt financing increases, as compared to equity financing, what would you expect to find in terms of a change in return on equity if the company's return on assets remains the same?
- 8. If a company has no debt in its balance sheet, what is the relation between the return on assets and the return on equity?
- 9. When would you want to use the basic earning power to compare companies instead of the return on assets?
- 10. If a company has a return on assets of 10% and has a debt-to-assets ratio of 50%, what is the company's return on equity?
- 11. Suppose you calculate the following ratios for two companies, A and B.

	Company A	Company B
Current ratio	2.0	2.0
Quick ratio	1.0	1.5

What can you say about the relative investment in inventory?

- 12. Suppose you are comparing two companies that are in the same line of business. Company C has an operating cycle of 40 days, and Company D has an operating cycle of 60 days. Company C has a current ratio of 3, and Company D has a current ratio of 2.5. Comment on the liquidity of the two companies. Which company has more risk of not satisfying its near-term obligations? Why?
- 13. Suppose you calculate a return on fixed assets of 20% for 2008 and 15% for 2009 for a company. Explain how you would use the DuPont system to further investigate this change in the return on fixed assets.
- 14. In examining the trend of returns on assets over a 20-year period for a company, you find that the returns have been declining gradually over this period. What information would you look at to further explain this trend?

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15. Data for the Lubbock Corporation is provided as follows:

*Lubbock Corporation*

Balance Sheet

As of December 31, 2009 (in millions)

Cash	\$ 100	Accounts payable	\$ 300
Marketable securities	300	Other current liabilities	200
Accounts receivable	600	Long-term debt	500
Inventory	1,000	Common stock	2,000
Net plant and equipment	4,000	Retained earnings	3,000
Total assets	\$6,000	Total liabilities and equity	\$6,000

*Lubbock Corporation*

Income Statement

For Year Ending December 31, 2009 (in millions)

Sales	\$12,000
Cost of goods sold*	10,800
Gross profit	\$1,200
Administration expenses	150
Earnings before interest and taxes	\$1,050
Interest expense	50
Earnings before taxes	\$1,000
Taxes	400
Net income	\$ 600

\*Includes depreciation of \$800.

Calculate the following ratios for the Lubbock Corporation:

- Current ratio
  - Quick ratio
  - Inventory turnover ratio
  - Total asset turnover ratio
  - Gross profit margin
  - Operating profit margin
  - Net profit margin
  - Debt-to-assets ratio
  - Debt-to-equity ratio
  - Return on assets (basic earning power)
  - Return on equity
16. Consider two companies, each with a return on assets of 10%. Company X has a return on equity of 15%, and Company Y has a return on equity of 20%. Which company uses more financial leverage? Explain.

17. Construct the common size balance sheet for Grisham Company for 2009:

Balance Sheet (in millions)

Cash	\$50	Current liabilities	\$30
Accounts receivable	30	Long-term debt	90
Inventory	80	Equity	<u>240</u>
Plant and equipment	<u>200</u>		
Total assets	\$360	Total liabilities and equity	\$360