



6

INCOME STATEMENT ANALYSIS

LEARNING OBJECTIVES

After studying this chapter, you should be able to

- describe the organizational structure of an income statement
- understand the components of revenue and cost of goods sold
- describe the different methods of valuing inventory
- explain operating expenses and operating leverage
- define the key terms listed in this chapter

KEY TERMS

allowances

cost of goods sold

discounts

First-in First-out (FIFO)

fiscal statement

gross margin

gross profit

gross sales

income statement

interim statement

Last-in First-out (LIFO)

net sales

operating expenses

operating income

operating leverage

other expenses

other income

returns

INTRODUCTION

The income statement is a treasure box of information for a commercial lender. Contained within its lines for revenue and expense are the secrets waiting to reveal the company's capacity to repay debt.

Having completed interviews, investigations, and initial negotiations, the commercial lender has an understanding about the customer's character and willingness to repay the loan. However, willingness to repay a loan is not enough. An unblemished credit record and satisfied customers and suppliers are certainly desirable. But loans are repaid with cash, not good intentions. The commercial lender, therefore, must be sure a business's past financial performance and present financial condition show an ability to repay future debts.

The income statement reveals the secrets of the company's operation and management. This is the first section of the financial statement to be analyzed, because, among other things, it affects most components of the balance sheet. For example, companies selling products on credit have accounts receivable on the balance sheet. If credit sales change, so should accounts receivable.

Income statement analysis is affected by the type of business. Service and agricultural businesses generally have little or no cost of goods sold. Components of the cost of goods sold are different for manufacturers, wholesalers, retailers, and construction entities. The accounting method used for reporting revenue (accrued or cash basis) and for reporting inventory (LIFO, FIFO, or weighted average) ultimately affect profit lines. The lender must understand this and know the major accounts of an income statement: net sales, cost of goods sold, operating expenses, other income, other expense, interest expense, and net profit.

THE INCOME STATEMENT

An income statement may be called a profit and loss statement, an earnings statement, or an operating statement. Whatever the designation, it provides a summary of a firm's or individual's total revenues and total expenses recognized in

the generation of profit (or income) for a specific period. Exhibit 6.1 illustrates the income statement structure. The account lines show the various additions and subtractions. Many income statements start with net sales and do not show gross sales and deductions to get to net sales. Some do, however, particularly manufacturers. A lender should inquire about discounts, returns, and allowances, if these are not shown on the income statements.

For comparative purposes, income statements reflect the normal operating cycle of a business. A financial statement covering an operating cycle of 12 months is a **fiscal statement**. Financial statements prepared for periods of less than 12 months (e.g., semiannual, quarterly, or monthly) are **interim statements**.

PRELIMINARY CONSIDERATIONS

Exhibit 6.2 (see page 154) illustrates a computer-generated income statement for Dry Supply, a wholesaler of dry cleaning and laundry products. The last three years income statement demonstrates how to analyze an income statement. For Dry Supply and other examples, each account listed on the income statement is expressed as a percentage of net sales.

As part of a comprehensive analysis, each account on the income statement is evaluated. The first step is to understand the company's business and some basics about its income statements, for example, how the statements are prepared, what operating strategy and objectives are employed, under what conditions the company operates, and what methods are used to recognize revenue and expenses.

TYPES OF BUSINESSES

Income statements reflect the different operating characteristics of construction, wholesale, retail, manufacturer, service, and agricultural companies. For example, relative to other types of businesses, manufacturing and retailing companies realize a higher gross profit as a percentage of net sales. Because of substantial operating expenses, a greater gross profit margin is more necessary for a manufacturer of a retailer

Exhibit 6.1
Income Statement Structure

<i>Account lines</i>	<i>Amount</i>	<i>Percent of sales</i>
Gross Sales		
– discounts		
– allowances		
– returns		
= net sales		
– cost of goods sold		
= gross profit		
– operating expenses		
= operating profit		
+ other income		
– other expenses		
– interest expense		
= net profit before taxes		
– taxes		
= net profit after taxes		

than, say, a wholesaler. Because the product cost is generally not marked up substantially, a wholesaler has a low gross profit. Furthermore, because it sells products faster, a wholesaler is in less danger of absorbing significant losses when a product becomes obsolete or loses consumer acceptance. Service and agriculture companies often have no cost of goods sold, so gross profit margin and net sales are the same.

Of course, many other differences among businesses show up on the income statement. Selling expenses are a large item on a retailer's income statement, whereas salaries and general and administrative expenses make up a significant part of a professional service company's operating budget. A commercial lender should be aware of the differences among businesses and industries, and consider the financial statements of a potential customer within the proper context.

MANAGEMENT OBJECTIVES

Company operating strategies and objectives shape income statements. If it wanted to penetrate or capture a large share of a market, Dry Supply might reduce the selling price of its products without lowering costs. Over one or more years, this action likely would reflect a dip in earnings. Similarly, bringing a new product on-line, for example, as new cleaning powders, may increase selling expenses and temporarily depress the company's earnings. By understanding these considerations before analyzing an income statement, a commercial lender should be able to correctly interpret trends.

REVENUE ANALYSIS

For agricultural, manufacturer, wholesale, and retail companies, the first entry on the income

Exhibit 6.2**Computer-Generated Income Statement: Dry Supply**

<i>Income Statement</i> (000's omitted)	<i>Review</i> 12/31/20x4		<i>Review</i> 12/31/20x5		<i>Review</i> 12/31/20x6	
	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>
Net sales	\$895	100.0%	\$937	100.0%	\$918	100.0%
* Cost of goods sold	645	72.1	667	71.2	631	68.7
Gross profit	250	27.9	270	28.8	287	31.3
Selling, general, and administrative expenses	157	17.5	173	18.5	180	19.6
Officer's compensation	36	4.0	31	3.3	28	3.1
Rent expenses	15	1.7	18	1.9	20	2.2
Bad debt expense	2	0.2	1	0.1	0	0.0
Profit sharing expense	7	0.8	7	0.7	0	0.0
Depreciation expense	12	1.3	12	1.3	13	1.4
Total operating expenses	229	25.6	242	25.8	241	26.3
Operating income	21	2.3	28	3.0	46	5.0
Other income	0	0.0	0	0.0	0	0.0
Interest income	2	0.2	2	0.2	2	0.2
Rental income	3	0.3	3	0.3	3	0.3
Interest expense	6	0.7	7	0.7	11	1.2
Net profit before tax	20	2.2	26	2.8	40	4.4
Taxes	11	1.2	12	1.3	17	1.9
Net profit after tax	\$ 9	1.0%	\$ 14	1.5%	\$ 23	2.5%

statements is net sales. For service companies, the first entry is net sales or net revenues. For construction companies, the first entry is contract revenues. Net sales, net revenues, and contract revenues all mean the same thing. Net sales are the revenue a business realizes from the products it sells or the services it renders. Every invoice issued or cash receipt received by an agriculture, manufacturer, wholesaler, retailer, service, or construction company represents a sale. When compiled and tabulated for a given period—a year for a fiscal statement or a shorter interval for an interim statement—gross sales are obtained for that period. Sales do not necessarily reflect cash collected. Sales for manufacturers, wholesalers, service, and construction companies are generally on credit. Agribusiness

and retail sales are typically cash. Some considerations commercial lenders should take into account when analyzing sales follow.

NET SALES

Gross sales are a business's total sales before subtracting any deductions. Gross sales minus discounts, allowances, and returns equal **net sales**. Not all sales result in full payment. **Discounts** are the fees allowed by the seller that delivers the product or service to the purchaser for early payment. **Allowances** are amounts deducted from the total sale price when a shipment is made incorrectly. **Returns** are deductions from the total sales price due to the return of the product for quality concerns or other rea-

sons. Dry Supply, for example, offers customers a discount for paying invoices within 10 days of the billing date. When shipments are made incorrectly, customers receive credit on future bills (allowances) or have orders returned and bills canceled (returns). Some mistakes and returns are normal and acceptable. Too many adjustments, however, reflect the quality of operations and could signal a management problem. Exhibit 6.3 illustrates Dry Supply's net sales calculation.

With Dry Supply's customers receiving allowances and returns, it appears that its shipments are not always prepared-to-order or the quality of the product may be a problem. However, in this case, allowances and returns are each less than 1 percent of sales and, combined, total about 1.6 percent. Based on net profit after tax margins of 1 percent to 2.5 percent, profits would almost double had there been no returns and allowances.

ACCRUAL METHOD OF ACCOUNTING FOR REVENUES AND EXPENSES

When the accrual method of accounting is used, revenues usually are recognized when products are delivered for payment or sold directly to the end user, or the service is provided, or in the case of construction, partially completed. The method of accruing revenues, however, may vary from statement to statement or industry to industry. For bankers, it is important when analyzing the income statement to differentiate between the accrual basis of accounting and the cash basis of accounting. The accrual basis of accounting accounts for revenues when a sale is

made and for expenses when an expense is incurred. The cash basis method of accounting recognizes income and expense when cash is received or paid. The accrual basis of accounting, however, is a better measure for how profitable the borrower has been over time and reveals more about management strategies and practices in the timing of purchases, sales, and expenses.

SALES VOLUME AND PRICE TRENDS

A good indicator of a company's performance is the change in net sales level over several statements. By scanning an income statement spreadsheet from left to right, the dollar value in net sales is readily noted and compared. Yet, as previously mentioned, numbers can be misleading. A consistent 3 percent to 6 percent increase in net sales may not be noteworthy when a competitor's net sales increased by 10 percent over the same period. Also, a three percent to six percent increase may be due only to inflation. If that were the case, there would have been no increase in a company's business.

It is also worthwhile to consider the percentage rather than the absolute change in net sales. For example, Dry Supply's net sales were

<i>Year</i>	<i>Net Sales (000's omitted)</i>
20x4	\$895
20x5	\$937
20x6	\$918

Exhibit 6.3

Net Sales Calculation: Dry Supply

<i>(000's omitted)</i>	<i>20x4</i>	<i>20x5</i>	<i>20x6</i>
Gross sales	\$912	\$954	\$944
Less discounts	8	12	11
Less allowances	5	2	8
Less returns	4	3	7
Net sales	\$895	\$937	\$918

The annual increase in net sales on both a numerical and percentage basis was

<i>Period Net Sales (000's)</i>	<i>Growth</i>	<i>Growth (%)</i>
20x4 – 20x5	\$42	4.7
20x5 – 20x6	(\$19)	(2)

Another way of looking at net sales is on a unit basis. Net sales are determined by volume and price. Referring back to the Dry Supply example, suppose the \$937,000 of revenues in 20x5 was realized by the sale of 18,019 pounds of liquid cleaner at about \$52 per pound. In 20x6, revenues were \$918,000. If the price of liquid dropped to about \$50 per pound, then the \$19,000 decrease in revenues was entirely the result of selling more units. However, if the price of the cleaner increased to \$54 per pound during 20x6, then net sales on a unit basis did not increase. The following table summarizes these possible changes. Breaking down net sales by units sold and price adds insight into the causes of an increase (or decrease) in net sales.

	<i>Net sales by unit</i>	<i>Net sales</i>
20x5	18,019 × \$52	\$937,000
	18,360 × \$50	\$918,000
20x6	17,000 × \$54	\$918,000

Companies that sell numerous products, such as hardware stores, are often analyzed by looking at average dollar net sales and number of customers in each department. For example, if customers in a hardware store purchase more paint and paint supplies than household products, the retailer should have more inventories in the paint product department. When comparing net sales from one year to the next, another item to consider is whether the company added or closed any stores or offices or whether they added or deleted any products.

Other areas of the income statement also can affect net sales volume and prices. Some companies pay salespeople commissions based on a percentage of the net sales price. This may result in a company's having large, yet less prof-

itable, net sales. Other companies pay sales personnel a percentage of the gross margin, which should result in a company's having smaller, yet more profitable, net sales.

SALES MIX

Businesses often differentiate net sales by new accounts, product lines, sales territories, old accounts, and operating divisions. These breakdowns help a commercial lender focus on precise factors influencing net sales. If Dry Supply realizes 70 percent of its revenues from selling dry cleaning products and only 10 percent from selling laundry products, yet devotes equal time and other resources to selling both, a commercial lender might question the owner's managerial decision-making abilities. As illustrated in exhibit 6.4, the net sales mix also may affect gross margin.

ORDER BACKLOGS

Order backlogs, one indicator of future net sales, is a record the customer can supply. Order backlog trends provide some insight into revenue growth and the capacity of a company to supply its product. If order backlogs are not special orders, the commercial lender might question why the customer does not routinely carry more of the product. With \$150,000 in order backlogs, Dry Supply's revenue growth should remain strong for the foreseeable future.

LARGE NONRECURRING SALES

A substantial jump in the level of net sales from one year to the next may indicate a one-time sale of an unusually costly product, an event unlikely to be repeated in the future. A commercial lender should make sure that all large, nonrecurring sales are identified as such and taken into account when reviewing sales trends. For example, if Dry Supply had a one-time nonrecurring order in 20x5 for \$200,000, net sales would have decreased without this order.

Exhibit 6.4
Dry Supply Sales Mix

(000's omitted)	20x5		20x6	
Net Sales				
Dry cleaning	15,000 units \$43.33 per unit	\$650	8,077 units \$43.33 per unit	\$350
Laundry products	3,019 units \$95.00 per unit	287	5,979 units \$95.00 per unit	568
Total net sales		\$937		\$918
Cost of goods sold				
Dry cleaning	15,053 units \$19.93 per unit	300	8,077 units \$19.93 per unit	161
Laundry products	3,030 units \$47.52 per unit	144	\$5,976 units \$47.52 per unit	284
Total cost of goods sold		\$444		\$445
Percentage of sales		47.4%		48.5%

SALES TO MARGINAL CUSTOMERS

To increase net sales, a business may relax normal credit criteria for some customers. For example, a business normally sells products on credit with payment due in 30 days, but in an effort to improve net sales, it extends the payment period to 60 days. This practice, however, uses some of the company's working capital. Also, a business could increase net sales by selling products or providing a service to higher risk accounts. For example, new businesses have a higher failure rate than established companies. By increasing net sales to new businesses, the company is increasing its credit risk. By noting slowing trends in the aging of accounts receivable, a lender can determine if these practices exist.

COST OF GOODS SOLD

Cost of goods sold is the amount expensed to the income statement for the purchase and production of goods sold. Calculating cost of goods sold is different for manufacturers, wholesalers, retailers, and construction companies. A manu-

facturer has three types of inventory: raw material, work-in-process, and finished goods. To calculate the cost of goods sold for a manufacturer, the first step is to determine all direct manufacturing costs over the course of the year: material costs, labor expense, factory overhead, and taxes. Work-in-process is then added to this number to arrive at the total cost of goods manufactured. Because some goods are unfinished at the end of the year and unsold inventory remains, these costs must be deducted to arrive at total cost of goods sold. The calculation for a manufacturer is shown in exhibit 6.5 on the following page.

Therefore, the cost of goods sold is the total of the costs directly related to the manufacturing and purchase of goods, plus any work-in-process inventory, less finished goods inventory. A wholesaler, retailer, or construction company buys products from one party and sells to another or uses it to construct something. The calculations for cost of goods sold for a wholesaler, retailer, or construction company also are shown in exhibit 6.5. Agricultural and service companies generally do not have costs of goods sold to calculate.

Exhibit 6.5**Income Statement and Cost of Goods Sold Comparisons**

<i>Manufacturer</i>	<i>Wholesale/Retail/Construction</i>	<i>Service/Agriculture</i>
Sales – Cost of goods sold* = Gross profit – Operating expenses – Total operating expenses = Operating profit + Other income – Other expense – Interest expense = Net profit before tax	Sales – Cost of goods sold** = Gross profit – Operating expenses – Total operating expenses = Operating profit + Other income – Other expense – Interest expense = Net profit before tax	Sales = Gross revenues – Operating expenses – Total operating expenses = Operating profit + Other income – Other expense – Interest expense = Net profit before tax
<i>*Cost of goods sold calculation</i>	<i>**Cost of goods sold calculation</i>	<i>Cost of goods sold calculation</i>
Beginning raw material + purchases – ending raw material = raw material used Beginning work-in-process + raw material used + labor + manufacturing overhead – ending work-in-process = cost of goods manufacturing Beginning finished goods + cost of goods manufacturing – ending inventory = cost of goods sold Beginning inventory + raw materials + labor costs + manufacturing overhead = cost of goods available for sale – work in process – closing inventory = cost of goods sold	Beginning inventory + purchases – ending inventory = cost of goods sold	Same as net sales unless the company has inventory, then same as wholesale, retail, or construction

When the cost of goods sold is deducted from net sales, the resulting amount is the **gross profit**, which is the amount of money available to cover all other operating expenses. For analysis, the cost of goods sold and the gross profit as percentages of net sales are calculated. The percentage of gross profit to net sales is referred to as **gross margin**. For a business with net sales of \$120,000, a cost of goods sold of \$90,000, and a gross profit of \$30,000, the cost of goods sold percentage is 75 percent and the gross margin is 25 percent. For every dollar generated by a sale of goods or services, 75 cents represents the expense of producing, purchasing, or providing it and 25 cents the profit with which to pay all other expenses. With these considerations in mind, some areas of inquiry when analyzing cost of goods sold are inventory valuation, product costs, pricing philosophy, and supplier relationships.

INVENTORY VALUATION: LIFO VERSUS FIFO METHODS

Inventory, a key component of the cost of goods sold, is generally valued by one of two accounting methods: LIFO or FIFO, although another method, weighted-average cost (see below), is increasing in use. **Last-in First-out (LIFO)** uses the most recent purchases first in determining cost of goods sold. As such, ending inventory is valued assuming the earliest purchases remain in ending inventory. In times of inflation, the LIFO method results in a lower gross profit. **First-in First-out (FIFO)** assumes a firm's operations will use first those items purchased earliest. Therefore, on the firm's financial statements, the cost of the items purchased most recently is assigned to ending inventory. During a period of rising prices, FIFO accounting overstates gross profit. LIFO, because it matches current costs with current selling prices, is a more accurate gauge of profits during inflationary periods.

If a company changes the way it values inventory, many income statement accounts may be significantly different before and after the change. The customer's accountant should

disclose any change in inventory valuation in the footnotes to the financial statements. The inventory valuation method used has no relationship to the physical movement of inventory. However, it does affect reported profits and post-tax cash flow. Depending on the inventory valuation method used, inflation can have a differing impact on reported earnings. The time needed to complete the operating cycle also can influence the selection of the appropriate inventory valuation method.

In the footnotes to the financial statements, an attempt is made to reconcile inventory valued at LIFO for financial reporting purposes and the inventory's value if FIFO (replacement cost) had been used. This approach creates a LIFO reserve. The annual adjustment to the LIFO reserve is made at fiscal year-end. Interim period financial statements are therefore distorted. The LIFO reserve represents earnings that have been sheltered from taxes. Assuming the inventory can be sold for replacement cost and income taxes are paid, the residual can be considered "hidden reserve." In a period of rising prices, some companies suspend purchase or production and sell out of inventory. This "dipping into the LIFO reserve" effectively increases earnings.

A company may switch from FIFO to LIFO inventory valuation without IRS approval or notification. A switch from LIFO to FIFO, however, requires IRS notification. Any gain realized from the switch must be amortized over twice the number of years the company used LIFO.

The cost of inventory, whether purchased or manufactured, is aggregated on the balance sheet in inventory until sold. Inventory is therefore a deferred cost that will remain on the balance sheet until sold or expensed. This further reinforces the importance of having a clear understanding of the borrower's inventory management systems and periodic inspection of the borrower's inventory.

To illustrate the impact inventory valuation has on ending inventory, cost of goods sold, gross profit, gross margin, and net profit, consider a simple example on the following page in which inflation is running extraordinarily high.

<i>Inventory Purchases Illustration</i>			
<i>Day</i>	<i>No. of Units</i>	<i>Unit Cost</i>	<i>Total Purchases</i>
1	10,000	\$1.00	\$10,000
2	5,000	1.50	7,500
3	10,000	2.00	20,000
	25,000		\$37,500

If, at the end of Day 3, 10,000 units were sold at \$4.00 per unit with 15,000 units remaining as inventory, then the accounts on two income statements, one prepared using the LIFO method the other using the FIFO

method, will appear as shown in exhibit 6.6. As the exhibit demonstrates, the choice of inventory valuation method will affect income statement accounts.

Exhibit 6.6 LIFO and FIFO Inventory Valuation Comparison			
<i>LIFO</i>		<i>FIFO</i>	
Sales (10,000 @ \$4.00)	\$40,000	Sales (10,000 @ \$4.00)	\$40,000
Opening inventory	0	Opening inventory	0
Purchases	37,500	Purchases	37,500
Cost of goods available for sale	37,500	Cost of goods available for sale	37,500
<i>Less ending inventory (15,000 units)</i>		<i>Less ending inventory (15,000 units)</i>	
10,000 units @ \$1.00	(10,000)	5,000 units @ \$1.50	(7,500)
5,000 units @ \$1.50	(7,500)	10,000 units @ \$2.00	(20,000)
Total ending inventory	(17,500)	Total ending inventory	(27,500)
Cost of goods sold	20,000	Cost of goods sold	10,000
Gross profit	20,000	Gross profit	30,000
Gross margin	50%	Gross margin	75%
Income taxes at 30%	6,000	Income taxes at 30%	9,000
Net profit after tax	14,000	Net profit after tax	21,000
<i>Comparison LIFO versus FIFO</i>			
	LIFO		FIFO
Cost of goods sold	20,000	Cost of goods sold	10,000
Gross profit	20,000	Gross profit	30,000
Gross margin	50%	Gross margin	75%
Net profit after tax	\$14,000	Net profit after tax	\$21,000

INVENTORY VALUATION: WEIGHTED-AVERAGE COST METHOD

With computerized inventory tracking, the weighted-average cost method is becoming more popular. Companies with fluctuating inventory levels use weighted-average inventory accounting because it combines the other two methods, thereby reducing the inventory-holding gains of FIFO and limiting the gains in a LIFO windfall.

The weighted-average unit cost is calculated as cost of goods for sale (beginning inventory and net purchases) divided by units available for sale (see text table below).

The weighted-average method shows results approximately halfway between the LIFO method and the FIFO method. Exhibit 6.7 compares the weighted-average inventory valuation method with LIFO and FIFO.

INVENTORY VALUATION: RETAIL METHOD

Another way to value inventory is the retail method. Retailers use this method as a way to estimate the ending inventory cost. The retailer can take a physical inventory at retail prices; or estimate ending inventory and then, using the

<i>Cost of goods for sale ÷ units available for sale</i>	
<i>Weighted-Average Cost Inventory Valuation</i>	
Sales (10,000 units @ \$4.00)	\$40,000
Purchases	37,500
Less ending inventory—15,000 units @ \$1.50 ($37,500/25,000 = \1.50)	22,500
Cost of goods sold	15,000
Gross profit	\$25,000
Gross margin	62.5%

Exhibit 6.7

Inventory Valuation Comparison: Weighted Average, LIFO, FIFO

	<i>Weighted Average</i>	<i>LIFO</i>	<i>FIFO</i>
Sales (10,000 x 4.00)	\$40,000	\$40,000	\$40,000
Purchases	37,500	37,500	37,500
Less ending inventory	22,500 *	17,500 **	27,500 ***
Cost of goods sold	15,000	20,000	10,000
Gross profit	\$25,000	\$20,000	\$30,000
Gross margin	62.5%	50.0%	75.0%

* 15,000 units @ \$1.50 ($37,500/25,000$) = \$1.50

** 10,000 units @ \$1.00; 5,000 @ \$1.50

*** 5,000 units @ \$1.50; 10,000 @ \$2.00

cost-to-retail ratio, convert the ending inventory at retail cost. This method eliminates the need to review original invoices or other documents to determine the original cost of each inventory item. The retail method can be used with any of these cost-flow assumptions: FIFO, LIFO, or weighted-average cost. The commercial lender should understand which method is being used, because the valuation method affects net profits and the inventory's collateral value.

GROSS PROFIT

Once net sales and cost of goods sold have been calculated, it is a simple matter to determine the gross profit, which is the difference between the two. Gross profit usually reflects the type of industry in which the company operates. For 20x6, gross profit for Dry Supply was \$287,000; for 20x5, the gross profit was \$270,000; and for 20x4, it was \$250,000 (see text table below).

Dry Supply's cost of goods sold were 72.1 percent, 71.2 percent, and 68.7 percent of net sales in 20x4, 20x5, and 20x6, respectively. Although appearing somewhat consistent, the 3.4 percent decrease translated into additional earnings of \$31,212 in 20x6 (\$918,000 $\times$ 0.034). Questions a commercial lender might ask include: Were prices increased? Did the product mix change? What changes are expected to occur in 20x7? Answers to these queries would reveal additional information about the company's operations. For example, if Dry Supply increased prices by 5 percent in 20x6, its gross margin would decline by about 1.6 percent. This could have been caused by a change in the product mix.

GROSS MARGIN TRENDS

The commercial lender should investigate sharp changes in gross margin levels. Deteriorating margins indicate purchasing difficulties, manufacturing or service inefficiencies, pricing issues, or inventory accumulation. Acceptable gross margin levels vary among industries. To assess the sufficiency of margins, a commercial lender should make a comparison with others in the particular market or industry. Gross margin trends usually are compared best as percentage trends and not dollar trends.

When analyzing cost of goods sold, gross margin, and operating expenses, it is helpful to think of them as percentages of net sales and not actual dollars. For example, the gross margin for 20x5 was 28.8 percent of net sales. A one percent change would result in \$9,370 of extra or loss income (1 percent of \$937,000). Because the gross margin increased 2.5 percent from 20x5 to 20x6, this resulted in increased gross profit over 20x5 of \$22,950 (0.025 $\times$ \$918,000).

OPERATING EXPENSE ANALYSIS

Operating expenses (selling, general, and administrative expenses) represent costs not directly related to the production of goods and services. Wages paid to a laborer to ship products, for example, are a cost of goods sold expense, but salaries paid to the office manager of Dry Supply are an operating expense. Usually, the customer can supply a more detailed breakdown of operating expenses, including salaries by type of personnel, auto expenses, insurance, repairs and maintenance, utilities, entertainment, profit-sharing, legal, accounting, advertising, and postage.

(000's omitted)	20x4	%	20x5	%	20x6	%
Net sales	\$895	100.0%	\$937	100.0%	\$918	100.0%
Less cost of goods sold	645	72.1	667	71.2	631	68.7
Gross profit	\$250	27.9%	\$270	28.8%	\$287	31.3%

The owner has more control over operating expenses than cost of goods sold. For example, the owner can decide how much to pay administrative employees, whether to lease or own the location, how much to pay himself, and if the company should have an employee retirement plan. These expenses reflect management decisions that provide some insight into management style and ability to adjust to change.

Small Businesses Benefit from Section 179 Deduction

Typically, if property for business has a useful life of more than one year, the cost must be depreciated across several tax years with a portion of the cost deducted each year. But there is a way to immediately receive these income tax benefits in one tax year. The provisions of Internal Revenue Code Section 179 allow a sole proprietor, partnership, or corporation to fully expense tangible property in the year it is purchased.

In 2003, tax-law changes made this option more appealing by increasing—from \$25,000 to \$100,000—the amount that can be written off immediately. Property that may be written off in the tax year of purchase, rather than depreciated over the asset's useful life, includes machinery and equipment, furniture and fixtures, most storage facilities, and single-purpose agricultural or horticultural structures.

The 2003 changes expanded eligible section 179 property to include off-the-shelf computer software. Previously, it had to be written off over three years. Ineligible property includes buildings and their structural components, income-producing property (investment or rental property), property held by an estate or trust, property acquired by gift or inheritance, property used in a passive activity, property purchased from related parties, and property used outside the United States.

OPERATING INCOME

To calculate operating income (loss), subtract total operating expenses from the gross profit. A

loss occurs if the total operating expenses exceed the gross profit. In 20x6, Dry Supply's gross profit was \$287,000 (31.3 percent of net sales), total operating expense was \$241,000 (26.3 percent of net sales), and operating income was \$46,000 (5.0 percent of net sales). (See text table on page 165.)

OPERATING LEVERAGE

Operating leverage describes the relationship among fixed costs, total costs, and net sales. The higher the percentage of fixed costs, the higher the operating leverage. Cost control is important to a price competitor. The control a company has over its cost is in part determined by the nature of costs. Changes in volume affect each type of cost in a different way. Fixed costs are defined as selling, general, and administrative expense. These costs are considered fixed or semi-variable because once they are established the company continues to pay them. For example, a business owner can decide whether to buy or lease a building, thus affecting rent expense. Once the lease is signed or the mortgage taken out, the monthly payment becomes fixed for the term of the lease or mortgage. Advertising and other expenses also are fixed or semi-variable costs controlled by the owner.

Variable costs are generally the cost of goods sold. They are variable because the owner does not need to purchase additional products if sales do not materialize. Because the cost of goods varies by the cost of each product sold, cost of goods also vary due to sales mix.

Insufficient net sales volume coupled with high operating leverage can affect gross profit and net profit margins by increasing sensitivity to economic changes, resulting in greater volatility of earnings, uncertainty, and risk. Profit or losses fluctuate disproportionately to changes in volume. As the net sales volume increases, fixed costs are spread across more units, thereby lowering per-unit costs and improving gross margin. On the following page, exhibit 6.8 demonstrates the effect on profitability. Once fixed costs are covered, the incremental per-unit contribution to fixed costs is added to net profit.

Exhibit 6.8
Operating Leverage

(000's omitted)	Amount	%	Amount	%	Amount	%
Net sales	\$1,000	100.0%	\$2,000	100.0%	\$4,000	100.0%
Fixed costs	1,000	100.0	1,000	50.0	1,000	25.0
Gross margin	0	0.0	1,000	50.0	3,000	75.0
Variable costs	250	25.0	500	25.0	1,000	25.0
Net profit	(\$ 250)	(25.0%)	\$ 500	25.0%	\$2,000	50.0%

Industries with high operating leverage, for example agriculture, are more susceptible to changes in the economy and have more volatile earnings than those with low operating leverage. High-operating leverage, therefore, introduces increased uncertainty and risk into a loan.

Exhibit 6.8 demonstrates the effect on operating leverage and margins brought about by an addition to fixed assets. The operating expenses increase because of the increased depreciation expense for the machinery. Fixed-asset additions tend to occur in stair-steps. Initially, gross and net margins are reduced, reflecting increased operating leverage. Over time, margins improve as sales expand (see exhibit 6.9).

Another way of measuring whether costs are reasonable is to calculate cost of goods sold and

operating expenses as a percentage of net sales and compare them to a similar company or to the industry average. For example, if officer salaries, as a percentage of net sales, generally average 10 percent to 15 percent for a closely held business, then a 30-percent figure may indicate owners are generously compensating themselves and perhaps others at the expense of the business's long-term profitability.

Analysis of Dry Supply's income statements (exhibit 6.2) reveals that operating expenses were 25.6 percent, 25.8 percent, and 26.3 percent of net sales for 20x4, 20x5, and 20x6, respectively. The 0.7 percent increase in operating expenses from 20x4 to 20x6, as a percentage of net sales, decreased profits by \$6,426 (\$918,000 $\div$ 0.007). The increase in operating

Exhibit 6.9
Operating Leverage and Fixed Assets*

	Year 0		Year 1	
Net sales	\$300,000	100.0%	\$330,000	100.0%
Cost of goods sold	225,000	75.0	247,500	75.0
Gross profit/margin	75,000	25.0	82,500	25.0
Operating expense	45,000	15.0	49,500	15.0
Depreciation	15,000	5.0	35,000	10.6
Operating profit	\$15,000	5.0%	(\$2,000)	(0.6%)

*Assumption: Company is operating in year 0. Machines purchased in year 1 for \$100,000 to be depreciated over 5 years with no salvage value using straight-line depreciation.

expenses as a percentage of net sales is partially caused by decreased sales. When net sales decrease and operating expenses remain the same, the percentage of operating expenses to net sales increases. Total operating expenses for Dry Supply in 20x4, 20x5, and 20x6 were as shown in the text table below.

OTHER INCOME AND EXPENSE ANALYSIS

Income and expenses falling outside the normal business operations are listed in the other income and other expense accounts on the income statement. Other income and other expenses also may be referred to as *extraordinary recurring and nonrecurring income or expense*. Possible sources of other income are the gain on the sale of fixed assets, interest income, dividend income, and renting excess facilities and equipment. Other expenses include losses on the sale of fixed assets, losses on the sale of stock or discontinued operations, and interest expense.

RENTAL INCOME

Rental income is often generated from excess building facilities or equipment. Renting or

leasing excess capacity without interrupting operational efficiency is wise to do. The lender needs to consider whether the income will continue or the company will soon need to use the space or equipment, and thereby stop this income source.

INTEREST INCOME

Interest income can be generated from excess cash invested in savings deposits or from other investments, such as a loan to another company. If such investments recur, the level of market interest rates will affect the level of income generated.

GAIN ON THE SALE OF FIXED ASSETS

A company can generate additional income by selling its excess fixed assets at a profit. For instance, after upgrading its fixed assets with more efficient equipment, a company may want to sell its used equipment. A gain results when the sale price exceeds the net book value of the asset sold. The net book value is the asset's cost less accumulated depreciation.

Dry Supply Operating Expense Trends						
(000's omitted)	20x4	%	20x5	%	20x6	%
Net sales	\$895	100.0%	\$937	100.0%	\$918	100.0%
Operating expenses (selling, general, and administrative costs)	157	17.5	173	18.5	180	19.6
Officers compensation	36	4.0	31	3.3	28	3.1
Rent expense	15	1.7	18	1.9	20	2.2
Bad debt expense	2	0.2	1	0.1	0	0.0
Profit sharing	7	0.8	7	0.7	0	0.0
Depreciation	12	1.3	112	1.3	13	1.4
Total operating expenses	229	25.6	242	25.8	241	26.3
Operating income	\$ 21	2.3%	\$ 28	3.0%	\$ 46	5.0%

DIVIDEND INCOME

Companies may own stock in related operating companies or in publicly traded companies. Any dividends received constitute a source of nonoperating income. Because dividends are based on the profitable operation of another company, without first analyzing that company, a commercial lender should not assume that its dividends constitute a dependable source of income in the future. A lender also might investigate the reason for the investment. Was it a temporary use of excess funds, some form of speculation, or to gain a business advantage?

EXTRAORDINARY RECURRING AND NONRECURRING INCOME

If other income constitutes a significant portion of the total income of a company, the commercial lender determines the sources of the other income and whether it can be relied on in the future. For example, Dry Supply rents extra office space to another business for \$3,000 per year. Alternatively, income from interest is usually recurring, although the amount may fluctuate depending on market interest rates. Dry Supply earns \$2,000 in interest income each year. Besides helping a commercial lender anticipate future profitability, information about other income can present a portrait of a company's operations. An increase in income from renting excess facilities or equipment or by selling fixed assets, for example, may indicate a business has excess capacity.

LOSS ON THE SALE OF FIXED ASSETS

If a company sells any of its fixed assets below book value, the loss associated with the sale is recognized as a nonoperating expense. When such losses show up on the income statement, a commercial lender needs to determine if additional losses are expected. Additional losses are more likely if the company has consistently underestimated depreciation on the used equipment by overestimating its useful life. If a sudden jump in technology has rendered just a few assets obsolete, continued losses on the sale of fixed assets are unlikely.

LOSS ON DISCONTINUED OPERATIONS

A company also can choose to discontinue some of its operations. This usually occurs when certain undertakings have not been as profitable as management would like and the assets could be more efficiently used in some other area of the business. When it decides to discontinue an operation, a company usually establishes a reserve on the balance sheet by estimating what losses will occur when liquidating the related assets and contracts. The analytical challenge is to determine whether the company will face additional losses in the future—something that might not be within management's control.

INTEREST EXPENSE

Interest expense is shown as a nonoperating expense because not all companies borrow money, or, at least, not the same amount at the same time. Because it is discretionary, interest expense is listed separately from other expenses. It also highlights the amount of interest paid, which can be compared to the bank's records or can measure the extent of interest costs on bottom-line profits. The cost of borrowing money depends both on the company's overall level of borrowing and whether debt is at a fixed or floating rate. In the latter case, the market interest rate at any particular time can have serious consequences. Therefore, depending on the company's borrowing requirements and interest rates, interest expense can fluctuate dramatically.

EXTRAORDINARY RECURRING AND NONRECURRING EXPENSES

Just as with other income, any significant other expenses should be identified as recurring or nonrecurring expenses. Losses from selling fixed assets or stock or from discontinuing operations do not occur regularly. Even so, the commercial lender should ask whether any future sale of assets is contemplated or whether any additional losses from discontinued operations will be forthcoming. Interest expense, which is a recurring expense, fluctuates in concert with market

interest rates and the amount of company debt. In 20x6, Dry Supply's interest expense increased to \$11,000. The company either used its credit line more or interest rates increased.

NET PROFIT BEFORE TAX

By adding other income and subtracting other expense from operating profit or loss, the net result is net profit before tax. Net profit also may be called net income. Because S Corporations, partnerships, and sole proprietorships are not taxed on the income statement, net income is the same as net profit after tax.

INCOME TAXES

Income taxes are the final entry on the income statement before reaching the bottom line. To anticipate the future tax rate on a business and its affect on profitability requires an understanding of business and personal tax issues. Many factors affect the amount of taxes reported on

the income statement, and this amount does not necessarily match that cited on personal or corporate returns. Job credits, loss carryovers, different federal and state tax brackets, and varying state tax requirements all make it difficult to draw useful comparisons among businesses and to assess the ability of a company to manage its tax burden.

In addition to the regular tax, a corporation may be liable for an additional tax on accumulated taxable income in excess of values specified in IRS code Sec. 531.

Typically, if property for a business has a useful life of more than one year, the cost must be spread across several tax years as depreciation, with a portion of the cost deducted each year. But there is a way to immediately receive these income tax benefits in one tax year. The provisions of Internal Revenue Code Section 179 allow a sole proprietor, partnership, or corporation to fully expense tangible property in the year it is purchased (see text table below).

Corporate Income Tax Rates—2006

<i>Taxable income over</i>	<i>Not over</i>	<i>Tax rate</i>
\$ 0	\$ 50,000	15%
50,000	75,000	25
75,000	100,000	34
100,000	335,000	39
335,000	10,000,000	34
10,000,000	15,000,000	35
15,000,000	\$18,333,333	38
\$18,333,333	—	35%

Note: Personal service corporations pay a flat 35%, regardless of the amount of taxable income.

Maximum Section 179 Expense Deduction

<i>2006</i>	<i>2005</i>	<i>2004</i>	<i>2003</i>	<i>2002</i>
\$108,000	\$105,000	\$102,000	\$100,000	\$24,000

Note: The maximum Section 179 Expense Deduction is expected to be \$112,000 in 2007 (as of October 2006).

NET PROFIT AFTER TAX

The quality and consistency of a company's earnings essentially determine its ability to repay debt. Tracing the trend in net profits for several statements also provides some insight into the future profitability of a business. It is important to compare a business's net profit record with those of similar businesses and with the industry as a whole. This comparison helps the commercial lender determine if a change reflects only that company or if other factors, such as a booming economy, also played a role. A company that realized a 10 percent annual increase in net profits after tax, when the industry average over the same period was 25 percent, made comparatively poor showing.

RECONCILIATION OF NET WORTH

Many income statements continue beyond net profits to show how the business accumulated and used those profits. Profits are dispensed in one of two ways: they can remain in the company as retained earnings, or they can be paid out as income or dividends to its owners. The net worth reconciliation statement provides insight into management's objectives about retaining equity. Any increase in net worth is a sign that a business is committed to future expansion through retained earnings. For a corporation, the dividend payout and earnings retention policies are compared with those of similar corporations. This comparison helps to determine the effect of management's objectives toward generating equity.

Net Worth

Net worth also may be referred to as equity or capital. Net worth is the difference between total assets and total liabilities.

The first entry to reconcile net worth is beginning net worth. In a corporation, net worth primarily represents common stock and

retained earnings. With a partnership or a sole proprietorship, net worth represents the equity of its owners.

In the accounts that follow beginning net worth, earnings retained in a business increase net worth, losses reduce it. Similarly, in partnerships and proprietorships, owner withdrawals decrease net worth, whereas retained earnings increase net worth. In corporations, net profit is either paid to stockholders as dividends or reinvested in a company to finance growth. Dividends reduce net worth, but can help draw additional equity from investors attracted to a high stock dividend return. Publicly held corporations must strike a balance between paying dividends (reducing net worth) and attracting shareholders (increasing net worth).

In determining the net profit after tax at year's end, privately held companies strike a balance by varying what is paid into pension and profit-sharing plans and what is allocated to officer bonuses, salary raises, or other compensation. By increasing or lowering these expenses, net profit after tax and, therefore, additions to net worth are held consistent each year. For example, if the owners of a privately owned company decide to pay themselves a large one-time bonus, the result of this action would decrease net profit and thus decrease net worth.

RETAINED EARNINGS

Retained earnings are not distributed to stockholders. Retained earnings are a part of the company's net worth. At the beginning of 20x5, Dry Supply's retained earnings were \$57,000. All the income the company made for that year (\$14,000) was kept in the company, resulting in retained earnings of \$71,000 at year's end. This number is then the company's retained earnings at the start of 20x6. Again, the income earned by Dry Supply during 20x6 was retained in the company, leaving a balance of \$94,000 in the company's retained earnings account at the end of 20x6 (previous year's \$71,000 plus current year's \$23,000).

DRY SUPPLY CASE STUDY

Having covered key issues to address on the income statement, now look at an example of the analytical process, featuring Anne Schippel, the commercial lender.

From previous interviews with the owners of Dry Supply, Schippel has learned that the wholesale company was founded in 1949 by the father, who sold it 20 years later to his daughters, the current owners and managers of the company. Four grandchildren also are employed by the company. In short, this is a family-run business and likely to remain so in the foreseeable future.

Dry Supply began as a wholesaler of powdered laundry products. Twenty years later, the operation changed its focus to dry cleaning supplies, such as liquid cleaners, plastic bags, and hangers. The company continues in that capacity today. Historically, the company has had a very good operating and credit record, and a check on its dealings with suppliers and customers reveals no notable problems.

Having obtained this and other background information, Schippel prepares to analyze Dry Supply's income statements. Adhering to a consistent process, Schippel begins by first reviewing the statements presented by the customer, noting the overall quality and completeness of the data. Applicable information, taken from the statements, then is entered into a computer, which generates a standard spreadsheet. At Schippel's bank, all financial statements, regardless of the preparer, are analyzed by using a standard format. The bank has discovered that a key to effective analysis is consistency in both the presentation and evaluation of information.

With spreadsheets in hand, Schippel begins a comprehensive financial analysis of Dry Supply's income statements (see exhibit 6.2).

For the last three years analyzed, sales have shown a moderate increase from approximately \$895,000 to \$918,000. Sales have declined however during the most recent year from the prior year's level. This decrease is of more concern than the three-year increase. Was the increase in 20x5 attributable to sales increases to existing accounts or to new accounts? If primarily from new accounts, was it because of an

aggressive sales effort or because Dry Supply decreased its prices? Are the new accounts as profitable as the old accounts? Will the new accounts pay as promptly as have the existing accounts? Has the company increased product prices? What caused the decline in 20x6? Is this the beginning of a declining trend? Were prices reduced or were fewer items sold? Did the company lose a customer or drop a product line?

The cost of goods sold has decreased over the three-year period. How is cost of goods determined? Does Dry Supply consider all material costs in its calculation? How much has Dry Supply increased prices in the last two years? Is the sale mix changing? Operating expenses increased from \$157,000 to \$180,000 in two years. What caused operating expenses to increase faster than sales? How long will the company increase these costs? When will the maximum capacity of sales per person be reached and thereby necessitate an increase in sales expenses? If officer salaries are a large part of the operating expenses, should the bank consider a loan agreement that would limit this expense? Is the debt structured on a fixed- or variable-interest-rate basis? If the latter, what is the prospect for interest rates in upcoming years, and what effect will this have on the cost of debt?

Dry Supply has been consistently profitable, with after-tax profits rising each year. Is this growth attributable to good management, industry conditions, or a combination of the two? Will the company be keeping most of the net profits as retained earnings or will they be taken out in dividends? What does management foresee for profits in upcoming years?

As the income statements are analyzed, Schippel addresses these and other questions. The right questions will help her "get behind" the numbers and better predict the company's future ability to repay debt.

Based on her analysis of Dry Supply's income statements, Schippel has drawn some preliminary conclusions about the company's strengths, weaknesses, and uncertainties. Bearing in mind the formula for an acceptable credit risk, she has listed her observations in the text table on the following page.

<i>Strengths —</i>	<i>Weaknesses ></i>	<i>Uncertainties</i>
Length of time in business	Reaching maximum shipping capacity	New customers' ability to pay
Established customer base	Continued future customer growth	Fixed asset needs
	Lack of sales growth	
Cost of goods sold		
Increasing profits		
Retained earnings		
Management		

SUMMARY

A key tool of financial analysis is the income statement. Dissecting the income statement reveals the underlying structure and helps the commercial lender become familiar with the entries found and what they reveal about a business's financial performance.

Income statements consist of revenue and expenses. When revenues exceed expenses, companies are profitable. The income statement normally begins with net sales, which is derived by subtracting discounts, returns, and allowances from gross sales. Cost of goods sold is the cost of producing or purchasing a product. The calculation varies by type of business. Agriculture and service companies generally have no cost of goods sold. Subtracting cost of goods sold from net sales determines gross profit. Gross profit expressed as a percentage of net sales is gross margin.

Some costs are fixed or semi-variable, controlled by the owner, such as lease costs. Other costs are variable, such as cost of goods sold. Operating expenses are more in the control of the business owner. These expenses include advertising, selling, salaries, and other expenses for the ongoing operation of the business. Operating income is calculated by subtracting total operating expenses from gross profit. If a company has an operating loss, it may not be able to repay its loans. Other income and other expenses also must be considered. Some of these expenses may be extraordinary or nonrecurring. Finally, taxes are calculated, and net profit after

tax is determined. The relationship of fixed costs, total costs, and net sales is called operating leverage.

Reconciling net worth shows whether net profit was retained as a future source of funds for the business or distributed among its owners. Earnings retained in a business increase net worth; money taken out of it (dividends) decreases net worth.

REVIEW QUESTIONS

1. Construct an income statement and place the following accounts in the correct order.

Net profit after tax	15
Other expenses	10
Net sales	100
Other income	5
Gross profit	60
Operating profit	35
Cost of goods sold	40
Income tax	10
Net profit before tax	25
Operating expense	25
Interest expense	5

2. If a company's sales are increasing 15 percent per year and inflation is 8 percent per year, what key issues should the commercial lender address?

3. How is the cost of goods sold for a retailer calculated?
4. Explain the difference between the LIFO and FIFO inventory valuation methods.
5. What types of expenses are considered "other expenses"?
6. What is operating leverage?

ADDITIONAL RESOURCES

Analyzing Financial Statements, George E. Ruth, American Bankers Association, 2007

Internal Revenue Service
www.irs.gov

Overview of Financial Statements, American Bankers Association, 2000.

Small Business Association
www.sba.gov

EXERCISE 1

The net sales for Koch and Shea accounting practice for the last three years (in thousands of dollars) are:

20x4	20x5	20x6
\$1,333	\$1,561	\$1,824

If the number of customers served has remained the same, what caused the sales increase? If the company increased prices by 20 percent per year, is it serving more or fewer customers?

EXERCISE 2

A company has other income from the sale of equipment of \$25,000. The net profit before taxes is \$24,000. What does this tell you? What questions do you have about the equipment sale?

EXERCISE 3

Use the following information to construct an income statement. All numbers are in 000's. In the year 20x6, Boats and Motors Inc. sold \$3,866 in boats, motors, and accessories. The cost of goods sold was 90 percent. The company paid \$226 in operating expenses. The company line of credit was used to finance inventory of \$400,000. Therefore, interest expense increased to \$45. The company partially offset the interest expense with off-season interest income of \$12. Boats and Motors Inc. is a sub-S corporation, so no taxes were paid.

EXERCISE 4

Cyril's Sports, a retailer of sporting goods, provided the following three-year summary of its operating expenses (in thousands of dollars). Based on the statement trends, what questions would you ask? If the expenses increased each year as a percentage of sales, what does this mean?

(000's omitted)	20x4	20x5	20x6
Operating expenses	\$94	\$130	\$154
Officers compensation	\$20	\$ 24	\$ 24
Rent expense	\$ 9	\$ 12	\$ 16