

1 Part

Tools of the Trade

Part 1 requires the working knowledge of certain important disciplines that are firmly footed in the mathematical and economic sciences. Any financial analyst needs to study these disciplines—work with them time and time again—before being ready to progress farther into the financial analysis maze. As with many other professional pursuits, most of the early work (grunt work, “paying your dues,” “coming up the ladder”) builds a foundation on which the higher skills depend. They are the building blocks that the investor will use countless times in the construction of a portfolio.

The tools of financial analysis are as critical to investment success as surgical instruments are to a brain surgeon. With a working knowledge of these tools, the financial analyst, whether a beginner or a seasoned investor, will have the skills to recognize a timely investment opportunity.

The four tools of financial analysis are:

1. Accounting
2. Economics
3. The mathematics of finance
4. Quantitative analysis using basic statistics and regression analysis

In Chapter 1 we discuss the all-important science of accounting, or as we call it—“the scriptures of business.” Accounting is the written language of business—the figures that bring it all together and the universal language an analyst uses to understand the business. A working knowledge of accounting enables the investor to dissect the company’s financial statements to better understand the specifics within a business as well as searching for any inconsistencies or red flags. In this case, the investor acts as a detective, searching through data from sources initiated by several types of media, to identify information that permits an analysis and subsequent valuation.

Additionally, careful examination of financial statements can lead to a better understanding of management’s policies and style:

Does management have a conservative or liberal bias with regard to accounting policies? By which method are non-current assets depreciated? What is the “quality” of the earnings? How are the revenues determined? What methods are employed?

Answering such questions can lead to a more comprehensive valuation of any company.

Chapter 2, “Economics,” focuses on the items, such as government indicators and the important parity conditions that exist in international economics. Studying these areas is essential for attaining a more complete picture of how economic events affect the valuation of financial instruments:

When are the major economic indicators released and what do they tell us about the economy? Does the economic business cycle permit an advantage in timing of the stock market? What role does the Federal Reserve play in the conditioning of our financial markets? How have the theories of economic science differed in the past 100 years?

Chapter 3, “Investment Mathematics,” deals with the underpinnings of the entire study of investment finance—the mathematics behind the future value of money. After a discussion of the different formulas used to calculate this all-important mathematical concept, several problems are presented that permit the practitioner a repetitive learning format. This “problem set” format lends itself to much of this chapter, for

investment mathematics, simple enough in theory, requires the practical understanding that comes with repetitive problem solving (e.g., What is the future value of \$1,000 in 6 years at a compounded rate of 6 percent per year? What is the internal rate of return, or valuation, of a specific investment project?).

Chapter 4, “Quantitative Analysis,” is the final chapter in Part 1. The quantitative approach to investment analysis is critical when the investor is making a hypothesis about the relationship between independent variables and a particular firm’s earnings. This chapter also discusses the differences between simple and compounded annual returns so to better evaluate the returns quoted in the financial press and within the industry. Again, the problem set format is used to further reinforce the practical applications of this theory (in addition, the appendix in Chapter 4 covers regression analysis).

Okay, so let’s buckle up our tool belt and begin this journey into the world of Security Analysis.

1

Chapter

Accounting

In this chapter, you will learn the following aspects of accounting:

- ✓ The big three: the balance sheet, the income statement, and the cash flow statement.
- ✓ The basics of managerial accounting.

The practice of accounting is the tabulating and bookkeeping of the capital resources (in currency terms) of a particular firm. The actual entries listed on the accounting statements do not tell us anything concrete about the firm's business activities, but reflect how accountants record these activities. That is not to say that accounting statements are without value; they are among the most important pieces in the valuation puzzle, but without careful study, they do not reveal any information of consequence. This inadequacy of accounting data lies within the procedures themselves; in most cases, an investor needs to be proficient in this art to gain any insight into the future prospects of the concern in question.

The Big Three

The financial statements of a business enterprise are essentially their scribes—the books, as we affectionately call them. These “books” document—in the universal language of numbers—the ins and outs of the

flow of capital within a business enterprise. The books come in three chapters, if you will: the balance sheet of assets and liabilities, the income statement of revenues and costs, and the cash flow statement which reconciles the inflows and outflows of cash. These three statements are interlinked, as we will soon see, and their interaction—and the understanding of the implications between each statement—is a critical part of the analyst’s core competency. In the sections that follow we discuss each statement in detail.

The Balance Sheet

The balance sheet serves as a snapshot of the current net worth of a particular firm at a given moment in time. It illustrates, in some detail, the asset holdings (fixed and current) as well as the liabilities, in such fashion that the offsetting amounts equal the net worth of the company (equity). In its simplest form, the Balance Sheet offsets the enterprise’s assets (the value of things they own) with the liabilities (the value of things they owe), which results in the equity (the net worth) of the enterprise. As we will see, the key in this statement is how these assets and liabilities are valued—this will give the analyst and investor keys to unlocking value opportunities or red flags of caution. When examining the balance sheet be mindful of the inputs—in other words, how these values came to be—for, as in many business pursuits, the devil is in the details. These details are compiled in the often forgotten “fine print” of the footnote section of the accounting documents. It is here, in these footnotes, that the perceptive analyst (“detective”) can uncover opportunities and important issues. The following definitions provide an understanding of this financial statement’s individual components. (See Table 1.1 for a sample of this statement.)

Assets

The first major section of the balance sheet lists assets, including the following:

Current Assets This consolidation entry includes assets that can be converted into cash within one year or normal operating cycle. The following entries are components of current assets:

TABLE 1.1 ABC Products—Balance Sheet 12/31/08

<i>Current Assets</i>		<i>Current Liabilities</i>	
Cash	\$156,663	Accounts Payable	\$388,834
Portfolio of Marketable Securities	\$100,000	Income Tax Payable	\$13,394
Accounts Receivable	\$578,745	Short-Term Notes Payable	\$425,000
Inventory	\$978,094	Accrued Expenses	\$188,539
Prepaid Expenses	\$117,176	Total Current Liabilities	\$1,015,767
Total Current Assets	\$1,930,678	Long-Term Notes Payable	\$550,000
Property, Plant, and Equipment	\$0	Stockholders Equity	
Land, Building, Machines	\$0	Capital Stock	\$725,000
Equipment and Furniture	\$1,986,459	Retained Earnings	\$1,174,230
Accumulated Depreciation	−\$452,140	Total Liabilities and Equity	\$1,899,230
Other Assets	\$0		\$3,464,997
Total Assets	\$3,464,997		

- ✓ *Cash.* Bank deposit balances, any petty cash funds, and cash equivalents (money markets, U.S. Treasury Bills).
- ✓ *Accounts receivable.* The amount due from customers that has not yet been collected. Customers are typically given 30, 60, or 90 days in which to pay. Some customers fail to pay completely (companies will set up an account known as “reserve for doubtful accounts”), and for this reason the accounts receivable entry represents the amount expected to be received (“accounts receivable less allowance for doubtful accounts”).
- ✓ *Inventory.* Composed of three parts: (1) raw materials used in products, (2) partially finished goods, and (3) finished goods. The generally accepted method of valuation of inventory is the lower of cost or market (LCM). This provides a conservative estimate for this occasionally volatile item (see Aside on page 30: LIFO versus FIFO).

- ✓ *Prepaid expenses.* Payments made by the company, in advance of the benefits that will be received, by year's end, such as prepaid fire insurance premiums, advertising charges for the upcoming year, or advanced rent payments.

Fixed Assets (Noncurrent Assets) Assets that cannot be converted into cash within a normal operating cycle. The following are fixed assets:

- ✓ *Land, property, plant, and equipment.* Those assets not intended for sale, and used time and time again to operate the enterprise. The typical valuation method for fixed assets is cost minus the accumulated depreciation—the amount of depreciation that has been accumulated to this point. This is an important consideration—the fact that certain long-term assets are not marked-to-market (a term that has clearly entered our lexicon in the last year or so)—for it lends itself to some potential uncovering of value. A value investor seeking equities that the market is not correctly valuing, for a host of reasons from misunderstanding the company's business to not correctly valuing its assets, can often find opportunities to be marking-to-market these long-term assets.

Liabilities

The next major portion of the balance sheet lists liabilities, including the following:

Current Liabilities This entry includes all debts that fall due within 12 months (or one operating cycle). By matching the current assets with the current liabilities, the investor can get a good idea of how payments will be made on current liabilities:

- ✓ *Accounts payable.* Represents the amount the company owes to business creditors from whom it has purchased goods or services on account. This is often referred to as "Trade-Related Debt."
- ✓ *Accrued expenses.* The amounts owed and not yet recorded on the books that are unpaid at the date of the balance sheet.
- ✓ *Income tax payable.* The debt due to the Internal Revenue Service (IRS) or other taxing authorities but not yet paid. These

are, by definition, accrued expenses, but because they are tax related, they carry with them a certain importance to the analysis of the firm.

Long-Term Debt These are debts due beyond one year (or one operating cycle).

Stockholders' Equity

The last major section of the balance sheet is the stockholders' equity section, which includes the following:

Stockholders' Equity The total equity interest that all shareholders have in the company. Stockholders' equity, like any other equity, is the net worth remaining after subtracting all liabilities from all assets. The true measure of the firm's reputation as an outstanding company resides in its ability to grow this equity amount. The book value of a firm is calculated as the stockholders' equity—the assets minus the liabilities.

Retained Earnings The amount of earnings, above the dividend payout, accumulated by the firm. Although retaining earnings may be an appropriate strategy at a given point in a firm's life cycle, it can also be an invitation to an activist investor seeking a cash cow investment opportunity. Furthermore, a company retaining too much of its earnings can open questions about why these cash flows haven't been reinvested in high net present value (NPV) projects so the company can continue to grow. (Is this firm running out of good opportunities?)

The Income Statement

Whereas the balance sheet is the record of net worth for the firm, the income statement illustrates the firm's operating record. In this statement, the firm's income and expenses are reconciled to arrive at a value of net income for the period in question. Very often, the analysis of equities focuses on this net income value (known as earnings). The information gleaned from one particular year is not as critical to the analysis of a particular firm as the data for several years or, better yet, the

projected (future) earnings information. It is this forecasting exercise that can make or break an investment decision, regardless of the security in the capital structure. An analyst used a myriad of inputs (macro-economic data as well as company-specific expectations) to ascertain a spectrum of likely earnings in future years. The analyst who can consistently forecast a firm's earnings most accurately will earn heavy kudos (not to mention an increase in institutional trading revenues for his firm's trading desks).

To put the corporate accounting statements in perspective: The income statement is similar to your personal tax filing for a given year, reconciling income (W-2, capital gain and dividend earnings, etc.) versus expenses (mortgage expense, business expenses, etc.). The balance sheet, on the other hand, is similar to your personal net worth statement that you might organize for an estate planning document or mortgage application.

The following definitions should aid in understanding this financial statement (see Table 1.2):

- ✓ *Revenue*. The amount received by the company for rendering its services or selling its goods. The total revenue is calculated by simply multiplying the number of goods sold by the price per unit (quantity sold \times price per unit). Revenue always initiates the income statement because, by definition, it is the starting point of operating activities. Net total revenue takes into account any returned goods and allowances for reduction of prices.
- ✓ *Cost of goods sold (COGS)*. The primary cost expense in most manufacturing companies—all the costs incurred in the factory to convert raw materials into finished product. The cost-of-goods expense also includes direct labor and manufacturing overhead associated with the production of finished goods. The *fixed cost* is the amount that will not typically increase with increases in output of the finished product; it includes expenses in operating an enterprise (e.g., rent, electricity, supplies, maintenance, repairs), often called “burden,” or “overhead.” A *variable cost* can be directly traced to the production process and therefore will typically increase as the number of units produced increases (e.g., raw material costs, sales commissions).

TABLE 1.2 ABC Products—Income Statement 12/31/08

Revenue	\$6,019,040
Cost of Goods Sold	(\$3,912,376)
Gross Profit	\$2,106,664
Operating Expenses:	
Sales, General and Admin	(\$323,288)
Utilities	(\$200,000)
Salaries	(\$700,000)
Marketing/Advertising	(\$300,000)
Total Operating Expenses	(\$1,523,288)
Operating Earnings before Interest, Taxes, Depreciation, and Amortization (EBITDA)	\$583,376
Depreciation Expense	(\$112,792)
Operating Earnings	\$470,584
Interest Expense	(\$76,650)
Earnings before Income Taxes	\$393,934
Income Tax Expense	(\$133,938)
Net Income	\$259,996

- ✓ *Gross profit.* The amount of excess of sales over the cost of sales. Gross profit is often represented as a ratio (in percentage form):

$$\text{Gross profit margin (expressed as a percent)} = \frac{\text{Gross profit amount}}{\text{Revenues}}$$

The following example illustrates the gross profit margin (see Table 1.2):

Revenues (or sales)	\$6,019,040
COGS	<u>3,912,376</u>
Gross profit	\$2,106,664

Therefore the gross profit margin is \$2,106,664 divided by \$6,019,040 or 35 percent.

- ✓ *Operating expenses.* This line item serves as a heading for the consolidation of the non-direct costs incurred in the operations

of a business. Selling, general, and administrative expense is the most typical operating expense for a company. As businesses differ operationally and economically, so will their allocations toward operating expenses. For example, the computer software development company will have a higher commitment toward operating expenses (salaries, bonuses, educational seminars, marketing, etc.) versus a wholesale manufacturing company whose largest costs are typically the raw materials used in the production process. Sales, general, and administrative expenses (SG&A) are important items in the analysis of a company for they illustrate the management's fiscal restraint or resistance to temptation. When a VFII notices the sales of a company increasing but the SG&A growing at a faster rate, a yellow flag of caution is raised. Components of SG&A include salaries, commissions, advertising, promotion, office expenses, travel, and entertainment expenses.

- ✓ *Operating earnings before depreciation (earnings before interest, taxes, depreciation, and amortization—EBITDA).* Known as a measure of cash flow, for it factors out the non-cash charges included in depreciation and amortization expense. Many analysts, especially those specializing in relatively new, very capital-intensive industries rely on this measure as the true earnings of the company.
- ✓ *Depreciation and amortization expense.* The estimated amount that management expects to use in the future to replace its operating facilities. It can be thought of as an escrow account where the company sets aside a specific (defined by tax policies, equipment's salvage value, and estimated useful life) amount each year to be used in the future to repurchase the operational necessities (plant and equipment) of the enterprise. Amortization is depreciation, but instead of referring to a tangible asset, it refers to an intangible asset (e.g., goodwill, patents).
- ✓ *Operating earnings.* Earnings attributed to the activities of the company without any impact from the financing of its balance sheet. This earnings figure is used in the calculation of an "enterprise value" or value of the business as if it were a private concern.
- ✓ *Interest expense.* Amount that equals the company's outstanding debt multiplied by its debt expense (i.e., interest owed to

bondholders). Under current corporate tax law, the debt payments made to bond holders are tax deductible: This amount is subtracted from the operating earnings before calculating the taxes.

- ✓ *Income tax expense.* Tax rate (approximately 36 percent on the corporate level) multiplied by the pretax earnings.
- ✓ *Net income.* Earnings, plain and simple—the last entry on the income statement, the bottom line. Ironically, it is the opening entry for much of what is known as fundamental analysis—the analysis of a business utilizing quantitative models to determine the earnings and subsequent valuation.

The Cash Flow Statement

The cash flow statement is the third statement in our accounting statements and is considered by many to be one of the most important. Unlike the Income Statement and Balance Sheet, the Cash Flow Statement illustrates the movement of cash rather than incorporating accounting rules and treatments to arrive at values. In the cash flow statement what we are getting is the “best” view of the activities of the company without the vagaries of accounting rules. The bottom line is that the Cash Flow Statement can tell us “*Where did the money come from?*” and “*What was it used for?*”—two very important questions for investors to grasp. It is important to understand that in the cash flow statement we are only interested in cash and cash equivalents (highly liquid fixed income securities with maturities less than three months).

There are two methods used to formulate the cash flow statement—the Direct Method and the Indirect Method (shown in Table 1.3). In the Direct Method we start with Net Cash Received from customers (the actual amount of cash—not sales—that came into the company over the period) and add or subtract from this figure other “sources” or “uses” of cash over the period, to arrive at the value for Operating Cash Flow. The Indirect Method starts with Net Income and makes a series of adjustments to that number to arrive at the value for Operating Cash Flow.

There are three pieces to the Cash Flow Statement—Cash Flow from Operations, Cash Flow from Investing Activities, and Cash Flow from Financing Activities. While the resulting net number from all of the three is used as the figure for the “Net Change in Cash” for the period—it

**TABLE 1.3 Cash Flow Statement—ABC Company
for the Year Ended 20XX: Indirect Method**

Cash Flow from Operations	
Net Income	\$ 300
Additions (Sources of Cash)	
Depreciation	\$ 200
Increase in Accounts Payable	\$ 40
Increase in Accrued Income Taxes	\$ 10
Subtractions (Uses of Cash)	
Increase in Accounts Receivable	\$ (150)
Increase in Inventory	\$ (50)
Net Cash Flow from Operations	\$ 350
Cash Flows from Investing Activities	
Equipment	\$ (400)
Cash Flows from Financing Activities	
Activities Notes Payable	\$ 30
Net Change in Cash	\$ (20)

is the Cash Flow from Operations that many analysts focus on as a clue to evaluating the management’s abilities and the overall strength of the company.

Cash Flow from Operations

Cash Flow from Operations is any cash transaction related to the company’s ongoing business—that is, the business activities that are responsible for most of the profits. Operating activities usually involve producing and delivering goods and providing services. Cash flow from operations is the healthiest means of generating cash. Over time, Cash Flow from Operations will show the extent to which day-to-day operating activities have generated more cash than has been used.

Direct Method

While not the most widely used method to calculate cash flow, the Direct Method must be also done if the Indirect Method is chosen. What

we are doing in this method is seeking a guideline to the flow of cash in and out of the company. So we need to study each piece of the company in order to ascertain this flow of cash. The basic equation here is:

Cash received in the operation of the business (that is, from sales of goods and services) MINUS the cash used to operate the business (that is, the costs of the goods and services) EQUALS Operating Cash Flow (direct methodology). The following is a good template:

Cash Flow From Operations:

- (+) Cash received from customers
- (+) Other operating cash receipts (if any; i.e. dividends)
- (−) Cash paid to suppliers (including suppliers of inventory, insurance, advertising, etc.)
- (−) Cash paid to employees
- (−) Interest paid
- (−) Income taxes paid
- (−) Other operating payments, if any
- (=) Total net cash provided (used) by operating activities

In Table Format:

Sources of cash (additions):

- Cash received from customers
- Dividends received
- Cash provided by operations

Uses of cash (subtractions):

- Cash paid for inventory
- Cash paid for insurance
- Cash paid for selling expenses
- Interest paid
- Taxes paid
- Net Cash from operations

So what we are doing in this Direct Method of Cash Flow from Operations is to seek the actual flow of cash in each piece of the business that

either generates or uses cash. One option that might make the calculation of cash received from customers easier is to estimate it based on changes in some balance sheet accounts: Take accounts receivable at the beginning of the year, add to it sales for the period, and then subtract accounts receivable at the end of the year to compute how much in cash was collected. This interaction between accounting statements is a definitive advantage to the VFII who is seeking data that others may not have the time or expertise to uncover.

Indirect Method

Here we start with the Net Income figure (from the Income Statement) and we go through pieces of the enterprise to ascertain if the change (from period to period) led to an addition to cash (Source) or a decrease of cash (Use). Part of this exercise is counter-intuitive—for example, an increase in deferred taxes is a Source (or addition) of cash because we are deferring the payment of cash, while an increase in inventories is a Use (or subtraction) of cash because we are buying more goods with cash.

The following list is the basis to these entries:

Net income	
Adjustments:	
Depreciation and amortization	SOURCE
Deferred taxes	SOURCE
Decrease in accounts receivable	SOURCE
Increase in inventories	USE
Increase in accounts payable	SOURCE
Increase in accrued interest receivable	USE
Increase in accrued interest payable	SOURCE
Gain on sale of property	USE
Net cash flow from operating activities	

In the Indirect Method we sort of jump a bunch of smaller steps (in the Direct Method) by starting with Net Income and then making the necessary adjustments to arrive at Cash Flow.

Once the Operating Cash Flow is computed we need to do a similar procedure to the Investing and Financing parts of the Cash Flow Statement.

Net Cash Flow from Investing Activities

In this part of the cash flow statement we focus on those changes to the cash position of the company having to do with investing activities. Examples of investing activities are:

- ✓ Purchase or sale of an asset (assets can be land, building, equipment, or marketable securities)
- ✓ Loans made to suppliers or customers

The purchase of an asset is a use of cash, whereas a sale of an asset is a source of cash. Similarly, loans made to others is a source of cash. So what we do in this section is look at the balance sheet changes for items like land, building, equipment, and securities. By looking at these data points we can determine the changes in Cash Flow from Investing Activities.

Cash Flow from Financing Activities

In this section we are focused on the changes in cash from activities related to the financing of business. So changes in debt, loans, or dividends are accounted for in cash from financing. Changes in cash from financing are a source of cash when capital is raised, and they're a use of cash when dividends are paid. Thus, if a company issues a bond to the public, the company receives cash financing (source); however, when interest is paid to bondholders, the company is reducing its cash (a use of cash). Here again we look at the balance sheet and income statement data to determine the changes in these specific areas.

A company can use a cash flow statement to predict future cash flow, which helps with matters in budgeting. For investors, the cash flow reflects a company's financial health: basically, the more cash available for business operations, the better. However, this is not a hard and fast rule. Sometimes a negative cash flow results from a company's growth strategy in the form of expanding its operations.

By adjusting earnings, revenues, assets, and liabilities, the investor can get a very clear picture of what some people consider the most important aspect of a company: how much cash it generates and, particularly, how much of that cash stems from core operations.

Having defined the basic components of the accounting statements, we can begin to analyze these components. Managerial accounting simply

refers to using and analyzing accounting data to maximize the resources of the company. Decisions about the method chosen to depreciate an asset (straight-line or accelerated) could be crucial to the profitability of a company. The decisions surrounding the evaluation of a company's fixed cost structure (the allocation of costs that do not change with the level of output, e.g., rental cost) versus its variable cost structure (expenses that vary with the amount of output generated, e.g., raw materials, selling expenses) could also be crucial to future planning.

LIFO versus FIFO

Last in-first out (LIFO) and *first in-first out* (FIFO) are methods by which inventory is valued on a company's balance sheet. The typical company is continually purchasing new goods and selling existing goods, both of which come from the inventory account. The method used to determine the value of the inventory account is as follows:

$$\begin{aligned} &\text{Beginning period inventory value} + \text{Value of new purchases} \\ &\quad - \text{Inventory used in COGS} = \text{Ending period inventory value} \end{aligned}$$

Whether the LIFO or FIFO method is used in inventory valuation determines whether the amount expensed as cost of goods sold (COGS) comes from new purchases (LIFO) or existing inventory (beginning period) as in FIFO.

The following guidelines shed some light on this area.

LIFO

Undervalues inventory (given increasing prices) on balance sheet because the more expensive items are expensed as COGS rather than being kept on the balance sheet as inventory—hence, last in-first out. This method became more widely used during the inflationary 1970s, when companies attempted to match their current operations with current costs so as not to incur artificially high profits (with high profits come very real high taxes).

FIFO

Correctly values inventory on the balance sheet (in inflationary environment) due to an expensing (as COGS) of the previously purchased (at lower prices) goods, therefore providing an inequitable match of revenues with COGS, resulting in an overstatement of earnings and subsequent tax expense.

**PROBLEM SET: UNDERSTANDING ACCOUNTING
AND THE STATEMENTS**

Question 1

The Brittany Company, which manufactures robes, has enough idle capacity available to accept a special order of 10,000 robes at \$8 per robe. An expected income statement for the year without this special order is as follows:

	<i>Per Unit</i>	<i>Total</i>
Sales	\$12.50	\$1,250,000
Manufacturing costs:		
Variable	\$6.25	\$625,000
Fixed	<u>1.75</u>	<u>175,000</u>
Total manufacturing costs	<u>8.00</u>	<u>800,000</u>
Gross profit	\$ 4.50	\$ 450,000
Selling expenses:		
Variable	\$1.80	\$180,000
Fixed	<u>1.45</u>	<u>145,000</u>
Total selling expenses	<u>3.25</u>	<u>325,000</u>
Operating income	<u>\$ 1.25</u>	<u>\$ 125,000</u>

Assuming no additional selling expenses, what would be the effect on operating income if the company accepted the special order?

Answer

The three important facts in this problem are:

1. The idle capacity situation that currently exists within the company; this relates to a fixed cost structure that is able to take on more capacity without increasing its (fixed) costs.
2. The rather large size of the order that is being considered.
3. The assumption that no further selling (variable) costs would be incurred in this order.

The following computation breaks down the accounting data to better illustrate the problem:

The Brittany Company			
	Contribution Approach	Effects of Special Order	With Special Order
Sales	\$1,250,000	\$ 80,000	\$1,330,000
Variable costs	<u>800,000</u>	<u>62,500</u>	<u>885,000</u>
Contribution	\$ 450,000	\$ 17,500	\$ 444,500
Fixed costs	<u>325,000</u>	<u>0</u>	<u>320,000</u>
Net	<u>\$ 125,000</u>	<u>\$ 17,500</u>	<u>\$ 142,500</u>

The preceding calculations indicate that it would be advantageous (to the tune of \$17,500 in additional profits) to accept this special order.

The other (quick and intuitive) method is to examine the per unit costs:

- ✓ Revenues from special order are \$8 per unit.
- ✓ Variable costs per unit are \$6.25; assume that due to idle capacity there are no additional fixed costs.
- ✓ Net profit is therefore \$1.75 per unit, or \$17,500 for 10,000 units.

Question 2

From a particular joint process, The UTA Company produces three products—X, Y, and Z. Each product may be sold at the point of split-off or processed further. Additional processing requires no special facilities, and production costs of further processing are entirely variable and traceable to the products involved. In 2007, all three products were processed beyond split-off. Joint production costs for the year were \$60,000. Sales and costs needed to evaluate UTA’s 2007 production policy follow:

Product	Units Produced	Sales at Split-Off	If Processed Further	
			Sales	Additional Costs
X	6,000	\$25,000	\$42,000	\$9,000
Y	4,000	41,000	45,000	7,000
Z	2,000	24,000	32,000	8,000

Joint costs are allocated to the products in proportion to the relative physical volume of output.

To maximize profits, UTA should subject which products to additional processing?

Answer

We need to calculate the incremental increase in revenues that the further production would bring, as well as the subsequent net income.

X: $\$42,000$ (end revs) $- \$25,000$ (split-off revs) $= \$17,000$ (incremental increase)

$\$17,000$ (additional revs) $- \$9,000$ (additional costs) $= \$8,000$; therefore we should accept additional output.

Y: $\$45,000 - \$41,000 = \$4,000$

$\$4,000 - \$7,000 = (\$3,000)$; this is a negative value (loss); therefore reject additional output.

Z: $\$32,000 - \$24,000 = \$8,000$

$\$8,000 - \$8,000 = \$0$; although not a loss, this represents a break-even amount and is therefore also rejected for additional output.

Question 3

The following information is given for the Lone Hill Company:

Initial cost of proposed new equipment	\$130,000
Predicted useful life	10 years
Predicted salvage value (end of life)	\$10,000
Predicted savings per year in operating expenses	\$24,000

Ignoring income tax effects, what is the depreciation expense per year by straight-line method?

Answer

This example involves evaluating the straight-line depreciation method, one of the most common methods in accounting. In the straight-line method, the calculation is as follows:

$$\text{Depreciation expense per year} = \frac{(\text{Initial cost} - \text{Salvage value})}{(\text{Useful life})}$$

Apply this method to the data in the problem:

$$\text{Depreciation expense per year} = \frac{(\text{Initial cost} - \text{Salvage value})}{(\text{Useful life})}$$

$$\frac{(\$130,000 - 10,000)}{(10 \text{ years})} = \$12,000 \text{ per year depreciation expense}$$

Question 4

Developing a Cash Flow Statement. See Table 1.3 and the Cash Flow Statement for ABC Products Company.

Clearly there is much work to be done here—and you are just the budding analyst to do it! Please utilize the information in the ABC Products Balance Sheet (Table 1.1) and Income Statement (Table 1.2) as well as the data following to complete the statement (shown in Table 1.4).

- Datapoint 1: Accounts Payable on 12/31/07 was \$488,834
- Datapoint 2: Accounts Receivable on 12/31/07 was \$378,745
- Datapoint 3: Inventory was valued at 12/31/07 at \$950,000
- Datapoint 4: On 12/31/07 “Building” value was \$200,000
- Datapoint 5: Portfolio of Marketable Securities was valued at \$0 on 12/31/07
- Datapoint 6: Long Term Notes Payable on 12/31/07 was \$750,000
- Datapoint 7: In 2008, ABC Products is paying a dividend using a dividend payout rate of 15 percent

Answer

TABLE 1.4 ABC Products—Statement of Cash Flows 12/31/08		
New Income	\$259,996	From Income Statement
Depreciation and Amortization	\$112,996	Source of cash; from IS
Decrease in Accounts Payable	(\$100,000)	Use of cash, from BS
Increase in Accounts Receivable	(\$200,000)	Use of cash, from BS
Increase in Inventories	(\$28,094)	Use of cash, from BS
Net Cash Flow from Operations	\$44,898	
Changes in Cash Flow from Investing Activities		
Sale of a Building	\$200,000	Source of cash, from BS
Investment into a Portfolio of Marketable Securities	(\$100,000)	Use of Cash, from BS
Changes in Cash Flow from Financing Activities		
Retirement of Debt Outstanding	(\$200,000)	Use of cash, from BS
Dividends Paid	(\$38,999)	Use of cash, from IS (NI × Pay %)
Net Cash Flow	(\$94,101)	