



# **Studies In Accounting**

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## **Preface**

It is our pleasure to introduce this textbook titled **"Studies In Accounting"**, which carries our experience in teaching and practicing accounting. The textbook contains two parts. **Part I** written by Dr. Hussein M. Essa and **Part II** written by Dr. Amr Abdel-Bar. The authors wish all benefits to the targeted readers as well as our students.

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# **Part One**

# **Studies in Financial Accounting**

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# **Chapter One**

## **Sales Revenue, Cash, and Accounts Receivables**

In this chapter we consider sales revenue and related current assets. Combining these topics in one chapter presents their interrelated character. When sales are recognized in the income statement, a corresponding change occurs in the firm's asset composition. The firm receives either cash or the promise of cash. Income statement and balance sheet are intertwined.

### **1. Recognition of Sales Revenue :**

Why is the timing of revenue recognition important? Because it is critical to the measurement of net income. Under the matching principle, the cost of the items sold is reported in the same period in which revenue is recognized. Net income is the excess of revenues over the cost of goods sold and related expenses.

Managers often receive higher salaries or greater bonuses for increasing sales and net income. Therefore, they prefer to recognize sales revenue as soon as possible. Owners and potential investors, on the other hand, want to be sure that the economic benefits of the sales are guaranteed before recognizing revenue, because of these

different perspectives, accountants must carefully assess when revenue should be recognized.

Under cash-basis accounting, accountants recognize revenue when cash is collected for sales of goods and services. Under accrual-basis accounting, however recognition of revenue required a two-pronged test: (1) goods or services must be delivered to the customers (that is, the revenue is earned); and (2) cash or an asset virtually assured of being converted into cash must be received (that is, the revenue is realized).

Most revenue is recognized at the point of sale. Suppose you buy a record at a local record store. Both revenue recognition tests are generally met at the time of purchase. You receive the merchandise, and the store receives cash, a cash, a check, or a credit card slip. Because both checks and credit card slips are readily converted to cash, the store can recognize revenue at the point of sales regardless of which of these three methods of payment you use.

Sometimes the two revenue recognition tests are not met at the same time. In such cases, revenue is generally recognized only when both tests are met. Consider magazine subscriptions. The realization test is met when the publisher receives cash. However, revenues are not

earned until magazines are delivered. Therefore revenue recognition is delayed until the time of delivery.

## **2. Measurement of Sales Revenue, Cash and Credit Sales:**

After deciding when revenue is to be recognized, the accountant must determine how much revenue to record. In other words, how should accountants measure revenue? Ordinarily, accountants approximate the net realizable value of the asset inflow from the customer. That is, the revenue is measured in terms of the present cash equivalent value of the asset received. For cash sales, revenue is recorded equal to the cash received:

Cash	xxx	
Sales Revenue		xxx

a credit sale on open account is recorded much like a cash sale except that the balance sheet account Accounts Receivable is increased instead of Cash :

Accounts Receivable	xxx	
Sales Revenue		xxx

## **3. Merchandise Returns and Allowances:**

Suppose revenue is recognized at the point of sale, but later the customer decides to return the merchandise. He or she may be unhappy with the product for many



## Chapter One

reasons, including color, size, style, quality, and a simple changing of the mind. The supplier (vendor) calls these sales returns; the customer calls them purchase returns. Such merchandise returns are minor for manufacturers and wholesalers but are major for retail department stores. Or suppose that instead of returning the merchandise, the customer demands a reduction of the selling price for some reasons, sales allowance means making a reduction of the selling price (the original price previously agreed upon), the buyer calls such a price reduction a purchase allowance.

Gross sales revenue equal to the sales price must be decreased by the amount of the returns and allowances to give the net sales. But instead of directly reducing the revenue (or sales) account, managers of retail stores use a contra account, sales returns and allowances, which combines both returns and allowances in a single account. The journal entries (without explanation) are:

Accounts Receivable	90000	
Sales		90000
Sales returns and allowances	80000	
Accounts receivable		80000

The income statement would be :



---

*Sales Revenue, Cash, and Accounts Receivables*

Gross sales	900000
Deduct : Sales returns and allowances	80000
Net sales	<u>820000</u>

#### 4. Discounts From Selling Prices:

There are two major types of sales discounts: trade and cash. Trade discount apply one or more reductions to the gross selling price for a particular class of customers in accordance with a company's management policies. Companies set trade discount terms for various reasons. If common in the industry, the seller may offer trade discounts to be competitive. Discounts may also be used to encourage customer behavior.

In contrast to trade discounts. Cash discounts are rewards for prompt payment. The terms of the discount may be quoted in various ways on the invoice:

##### Credit Terms Meaning:

- n/30            The full billed price is due on the thirtieth day after the invoice date.
- 1/5, n/30      A 1% cash discount can be taken for payment within five days of the invoice date; otherwise the full billed price is due in thirty days after the invoice date.

- 15 E.O.M. The full price is due within 15 days after the end-of-the- month of sale. Thus, if the invoice is dated December 20, payment is due January 15.

### 5. Accounting for Net Sales Revenue:

Cash discounts and sales returns and allowance are recorded as deductions from gross sales. Consequently, a detailed income statement will often contain:

Gross sales	xxx
Deduct :	
Sales returns and allowances	xx
Cash discounts on sales	xx
	<hr/>
	xxx
Net sales	<hr/> <hr/>
	xxx

The journal entries follow :

Accounts Receivable	xxx	
Sales		xxx
Cash	xxx	
Cash discounts on sales	xxx	
Accounts receivable		xxx

### 6. Cash:

Cash has the same meaning to organizations that it does to individuals. Cash encompasses all the items that

are accepted for deposit by a bank, notably paper money and coins, money orders, and checks. Banks do not accept postage stamps (which are really prepaid expenses), notes receivable, or postdated checks as cash. Indeed, although deposits are often credited to the accounts of bank customers on the date received, the bank may not provide cash for a check until it "clears" through the banking system. If the check fails to clear because its writer has insufficient funds, its amount is deducted from the depositor's account. Many companies combine cash and cash equivalents on their balance sheets. Cash equivalents are highly liquid short-term investment that can easily be converted into cash with little delay.

### **7. Compensating Balances:**

Sometimes the entire cash balance in a bank account is not available for unrestricted use. Banks frequently require companies to maintain compensating balances, which are required minimum balances on deposit to compensate the bank for providing loans. The sized of the minimum balance often depends on either the amount borrowed or the amount of credit available, or both. Compensating balances increase the effective interest rate paid by the borrower. When borrowing LE 1000000 at 10% per year, annual interest will be LE 100000. With a 10% compensating balance, the borrower can use only LE

90000 of the loan, raising the effective interest rate on the usable funds to 11,1% (LE 10000/ LE 90000).

### **8. Management of Cash:**

Cash is usually a small portion of the total assets of a company. Yet, managers spend much time managing cash. Why? For many reasons. First, although the cash balance may be small at any one time, the flow of cash can be enormous. Weekly receipts and disbursements of cash may be many times as large as the cash balance. Second, because cash is the most liquid asset, it is enticing to thieves and embezzlers. Safeguards are necessary. Third, adequate cash is essential to the smooth functioning of operations. Managers must carefully plan for the acquisition of cash. Finally, cash itself does not earn income, so it is important not to hold excess cash.

Most organizations have detailed, well-specified procedures for receiving, recording, and disbursing cash. Cash is usually placed in a bank account, and the company's books are periodically reconciled with the bank's records. To reconcile a bank statement means to be consistent. The two balances are rarely identical. A company accountant records a deposit when made and a payment when the check is written. The bank, however, may receive or record it because of postal delay, deposit



on a bank holiday or weekend, and so on. The bank may also process a check days, weeks or even months after it was used.

## **9. Credit Sales and Accounts Receivable:**

Credit sales on open account create an increase in accounts receivable, which are amounts owed to the company by its customers as a result of delivering goods or services and extending credit for these goods or services. Accounts receivable, sometimes called trade receivables or simply receivables, should be distinguished from deposits, accruals, notes, and other assets not arising out of everyday sales. Moreover, the amounts included as accounts receivable should be collectible in accordance with the company's usual terms of sale.

## **10. Uncollectible Accounts:**

Granting credit entails cost and benefits. One cost is uncollectible accounts, or receivables that some credit customers will never pay. Accountants often label this major cost as bad debt expense. Another cost is administration and collection. The benefit is the boost in sales and profit that would otherwise be lost if credit were not extended. That is, many potential customers would not buy if credit were unavailable.

## **11. Deciding When and How to Grant Credit:**

Competition and industry practice affect whether and how companies offer credit. Offering credit involves costs such as credit administration and uncollectible accounts. Companies offer credit only when the additional earnings on credit sales exceed these costs. Suppose bad debts are 5% of credit sales, administrative costs of a credit department are LE 5000 per year, and LE 20000 of credit sales (with earnings of LE 8000 before credit costs) are achieved. Assume that none of the credit sales would have been made without granting credit. The earnings of LE 8000 exceeds the credit costs of LE 6000 ( $5\% \times \text{LE } 200000 + \text{LE } 5000$ ), so offering credit is worthwhile.

## **12. Measurement of Uncollectible Accounts:**

The measurement of income from credit sales becomes complicated because some debtors are either unable or unwilling to pay their debts. Such uncollectible accounts are also called bad debts or "doubtful accounts".

Suppose ABC company has credit sales of LE 100000 (two hundred customers averaging LE 500 each) during 20×1 were LE 60000. The December 31, 20×1 accounts receivable of LE 40000 includes the accounts of eighty different customers who have not yet paid for their 20×1 purchases. How should ABC Company accounts for

this situation? There are two basic ways: the specific write-off method and the allowance method.

### 13. Specific Write-off Method:

To account for uncollectible accounts, a company that rarely experiences a bad debt might use the specific write-off method. Which assumes that all sales are fully collectible until proved otherwise. When a specific customer account is identified as uncollectible. The account receivable is reduced. Because no specific customer's account is deemed to be uncollectible at the end of 20×1, the December 31, 20×1, ABC Company balance sheet would show an Account receivable of LE 40000. Now assume that during the second year, 20×2, the retailer identified Ahmed and Amr as customers who are not expected to pay. When the chances of collection from specific customers become dim, the amounts in the particular accounts are written down and the bad debt expense, or "uncollectible accounts expenses", "is recognized":

Bad debts expense	2000	
Accounts receivable, Ahmed		1400
Accounts receivable, Amr		600

## 14. Allowance Method:

Most accountants oppose the specific write-off method because it violates the matching principle. An alternate method makes use of an estimate of uncollectible accounts that can be better matched to the related revenue. The allowance method has two basic elements: (1) an estimate of the amount of sales that will ultimately be uncollectible and (2) a contra account, which records the estimate and is deducted from the accounts receivable. The contra account is usually called allowance for uncollectible accounts or allowance for doubtful accounts. It measures the amount of receivables estimated to be uncollectible from as yet unidentified customers. The associated journal entries are:

Accounts Receivable	100000	
Sales		100000
20×1 Sales		
Bad debt expense	2000	
Allowance for Uncollectible accounts		2000
20×1 Allowances		
Allowance for Uncollectible accounts	2000	
Accounts receivable, Ahmed		1400
Accounts receivable, Amr		600
20×2 Write-offs		



The principal argument in favor of the allowance is its superiority in measuring accoual accounting income in any given year. The allowance method results in the following presentation in the ABC company balance sheet, December 31, 20×1:

Accounts receivable	40000
Less: Allowance for uncollectible accounts	2000
Net accounts receivable	<u>38000</u>

### **15. Applying the Allowance Method Using a Percentage of Sales:**

A contra asset account is created under the allowance method because of the inability to write down a specific customer's account at the time bad debt expense is recognized. A percentage of sales method based on historical relations between credit sales and uncollectible is one method used to estimate the amount recorded in this contra account. In our example, at the end of 20×1 the retailer has LE 40000 in Accounts Receivable. On the basis of experience, a bad debt expense is recognized at a rate of 2% of total credit sales, or  $0.02 \times \text{LE } 10000$ , or LE 2000.

### **16. Applying the Allowance Method Using a Percentage of Accounts Receivable:**

Like the percentage of sales method, the percentage of accounts receivable method uses historical experience.

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but the estimate of uncollectible accounts is based on the historical relations of uncollectible to year-end gross accounts receivable, net sales. The additions to the allowance for bad debts are calculated to achieve a desired balance in the allowance account. This addition to the allowance equals the bad debt expense, as shown below. Consider the historical experience in the following table:

A.R. at end of year	Bad debts deemed uncol. and written off	
20×1	100000	3500
20×2	80000	2450
20×3	90000	2550
20×4	110000	4100
20×5	120000	5600
20×6	112000	2200
<u>Six-year total</u>	<u>612000</u>	<u>20400</u>
<u>Average</u>	<u>102000</u>	<u>3400</u>

Average percentage not collected =  $3400/102000 = 3,33\%$

At the end of 20×7, assume the accounts receivable balance is LE 115000. The 20×7 addition to the allowance for bad debts is computed as follows:

- 1- Determine the average losses as a percentage of the average ending balance of accounts receivable, as shown. Average bad debt losses are LE 3400. Divide LE 3400 by LE 102000 to obtain 3,33%.
- 2- Apply the percentage not collected to the ending accounts receivable balance for 20×7 to determine the balance that should be in the allowance account at the end of the year:  $3,33\% \times 115000$  receivables at the end of 20×6 is LE 3833.
- 3- Prepare an adjusting entry to bring the allowance to the appropriate amount. Suppose the books show a LE 700 balance in the allowance account at the end of 20×7. Then the adjusting entry for 20×7 is  $3833 - 700$ , or 3133, to record the bad debt expense. The journal entry is:

Bad debts expense	3133	
Allowance for bad debts		3133

The percentage of accounts receivable method differs from the percentage of sales method in two ways: (1) the percentage is based on the ending accounts receivable balance rather than on sales, and (2) the dollar amount calculated is the appropriate ending balance in the allowance account, not the amount added to the account for the year.

## 17. Applying the Allowance Method Using the Aging of Accounts Receivable:

A refinement on the percentage of accounts receivable approach is the aging of accounts receivable method, which considers the composition of the end-of-year accounts receivable. As time elapses after the sale, ultimate collection becomes less likely. The seller may send the buyer a late notice thirty days after the sale, a second reminder after sixty days, make a phone call after ninety days, and place the account with a collection agency after 120 days. Companies that analyze the age of their accounts receivable for credit management purposes naturally incorporate this evidence into estimates of the allowance for uncollectible. For example, the LE 115000 balance in accounts receivable on December 31, 20×7, might be aged as follows:

Name	Total	1-30 days	31-60 days	61-90 days	Over 90 days
Ahmed	20000	20000			
Amr	10000	10000			
Mohamed	20000	15000	5000		
Adel	22000		12000	10000	
Hussein	4000			3000	1000
Other	39000	27000	8000	2000	2000
<b>Total</b>	<b>115000</b>	<b>72000</b>	<b>25000</b>	<b>15000</b>	<b>3000</b>

Historical bad debt

Percentages

0.1%

1%

5%

90%

25



Bad debt allowance to be provided  $3772 = 72 + 250 + 750 + 2700$

This aging schedule produces a different target balance for the Allowance account than the percentage of accounts receivable method did: 3772 versus 3833. Similarly, the journal entry is slightly different. Given the same LE 700 balance in the Allowance account, the journal entry to record the Bad Debts Expense is 3772 – 700 or 3072:

Bad debts expense	3072	
Allowance for Uncol. Accounts		3072

Whether the percentage of sales, percentage of accounts receivable, or aging method is used to estimate bad debt expense and the allowance for Uncollectible Accounts, the subsequent accounting for write-offs is the same, a decrease in Accounts Receivable and a decrease in the allowance for Uncollectible Accounts.

### **18. Bad Debt Recoveries:**

A few accounts will be written off as uncollectible, but then collection occurs at a later date. When such bad debt recoveries occur, the write-off should be reversed, and the collection handled as a normal receipt on account. In this way, a company will be better able to keep track of the customer's true payment history. Return to the ABC

Company example and assume that Amr's account for LE 600 is written off in February 20×2 and collected in October 20×2. The following journal entries produce a complete record of the transitions in Amr's individual accounts receivable account.

Feb. 20×2	Allowance for Uncol. Accounts Accounts receivable To write off uncollectible account	600	600
Oct. 20×2	Accounts receivable Allowance for Uncol. Accounts To reverse February 20×2 write-off	600	600
Oct. 20×2	Cash Accounts receivable	600	600

## **Questions**

1. Describe the two alternatives for the timing of revenue recognition on a LE 50 million long-term government contract with work spread evenly over five year. Which method do you prefer? Explain.
2. Distinguish between a sales allowance and a purchase allowance.
3. Distinguish between a cash discount and a trade discount.
4. "A compensating balance essentially increases the interest rate on money borrowed". Explain.
5. "Cash is only 3% of our total assets. Therefore we should not waste time designing systems to manage cash. We should use our time on matters that have a better chance of affecting our profit". Do you agree? Explain.
6. Distinguish between the allowance method and the specific write-off method for bad debt.
7. "The cash balance on a company's books should always equal the cash balance shown by its bank". Do you agree? Explain.
8. "Under the allowance method, there are three popular ways to estimate the bad debt expense for a particular year". Name the three.

9. What is meant by "aging of accounts"?
10. Describe why a write-off a bad debt should be reversed if collection occurs at a later date.
11. Distinguish between the percentage of sales approach to applying the allowance method and the aging of accounts receivable approach.
12. What is the cost-benefit relationship in deciding whether or not to offer credit to customers.

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## Demonstration Problems

- 1- Mohamed Hassan is marketing manager for Engine Distributors, sold 12 engines to ABC Company the sales contract was signed on April 27, 20×1. The list price of each engine was LE 1200, but a 5% quantity discount was allowed. The engine were to be delivered on May 10, and a cash discount of 2% of the amount owed was offered if payment was made by June 10. Engine distributors delivered the engines as promised and received the proper payment on June 9.

### Required:

- A. How much revenue should be recognized in April? In May? In June? Explain.
- B. Suppose Engine Distributors has a separate account titled "Cash discounts on Sales". What journal entries would be made on June 9 when the cash payment is received?
- C. Suppose Engine Distributors has another account titled "Sales Returns and Allowances". Suppose further that one of the engines has a scratch, and Engine Distributors allowed ABC Company to deduct LE 100 from the total amount due. What journal entries would be made on June 9 when the cash payment is received?

**Solution to Problem One:**

A. Revenue of LE 13680 ( $12 \times \text{LE } 1200$  less a 5% quantity discount of LE 720). Would be recognized in May and none in April or June. The key is whether the revenue is earned and the asset received from the buyer is realized. The revenue is not earned until the merchandise is delivered; therefore revenue can not be recognized in April. Provided that ABC Company has a good credit rating, the receipt of cash is reasonably ensured before the cash is actually received. Therefore recognition of revenue need not be delayed until June. On May 10 both revenue recognition tests were met, and the revenue would be recorded on May's income statement.

B. The original revenue recorded was LE 13680. The 2% cash discount is  $2\% \times \text{LE } 13680 = \text{LE } 273,6$ . Therefore the cash payment is  $13680 - 273,6 = 13406,4$  :

Cash	13406,80	
Cash discounts on sales	273,60	
Accounts receivable		13680

C. The only difference from requirement B is a LE 100 smaller cash payment and a LE 100 debit to sales returns and allowance:

## Sales Revenue, Cash, and Accounts Receivables

Cash	13306,8	
Cash discounts on sales	273,6	
Sales returns and allowances	100.0	
Accounts receivable		13680

2- El Salam Products, balance sheet showed the following  
(in thousands) :

	May 1	
	20×1	20×0
Receivables :	689672	649352
Less allowance for doubtful accounts	11563	8564
Net	678109	640788

**Required:**

Suppose a large grocery chain that owed El Salam LE 2 million accounted bankruptcy on May 20×1 El Salam decided that chances for collection were virtually zero. The account was immediately written off. Show the balance as of May 2 20×1, after the write-off. Explain the effect of the write-off on income for May 20×1.

**Solution to Problem Two:**

Receivables (689672 - 2000)	678672
Less allowance (11563 - 2000)	9563
	<u>678109</u>

Because El Salam Balance has an account labeled allowance for doubtful accounts, it must use the allowance

method. The write-off will not affect the net carrying amount of the receivables, which is still 678109. Moreover, the income for May 20×1 will be unaffected. Why? Because the estimated expense has already been recognized in prior periods. Under the allowance method, net assets and income are affected when the estimation process occurs, not when the write-off happens.



## **Chapter Two**

# **Valuing Inventories, Cost of Goods Sold, and Gross Profit**

This chapter introduces the details involved in assigning value to inventories and calculating the cost of goods sold. These important measures are used to determine a firm's gross profits. Since a firm's goal is profitable sales, we need effective accounting techniques to measure profitability. This chapter covers the methods and procedures for valuing inventory on the balance sheet and for recording costs of goods sold on income statement. The accounting procedures discussed in this chapter are responses to a reporting need encountered in every nation of the world. While the dominant practices differ slightly from country to country, the issues remain. Even within a country, many different procedures are encountered. Thus, the reader of financial statements must understand alternative practices in order to intelligently compare the economic performance of different firms.

### **1. Gross Profit and Cost of Goods Sold:**

For firms that purchase and resell merchandise, the profitability of sales revenue is measured by calculating gross profit, which is defined as the difference between sales revenues and the cost of the goods sold. These



calculations rely on the value of the firms' inventories, which are goods that are being held for resale. Sales revenue must cover the cost of goods sold and provide profit sufficient to cover all other costs, including research and development, selling and marketing, administration and so on prior to sale, items held for sale are reported as inventory, a current asset in the balance sheet. When the goods are sold, the cost of the inventory becomes an expense, cost of goods sold, in the income statement. This expense is deducted from net sales to determine gross profit, and additional expenses are deducted from gross profit to determine net income.

## **2. The Basic Concept of Inventory Accounting:**

The key to calculating the cost of goods sold is accounting for inventory. Conceptually, the process is very simple. Suppose Nader sells t-shirts. Periodically, he orders many shirts of various sizes and colors. He sells, he orders more, and his business operating cycle continues, after a year, to evaluate his success, Nader prepares financial statements. To calculate the value of inventory on hand, he obtains a physical count of inventory items remaining at year end. He then develops a cost valuation, which assigns a specific value from the historical cost records to each item in ending inventory. With 100 shirts remaining at a cost of LE 500 each, Nader's total ending

inventory is LE 500. Suppose he had no shirts at the beginning of the year, and total purchases for the year were LE 26000 his cost of goods sold is LE 25500 (26000 of available shirts minus 500 of unsold shirts).

### 3. Perpetual and Periodic Inventory Systems:

There are two fundamental ways of keeping inventory records for merchandise: perpetual and periodic. The perpetual inventory system keeps a running, continuous record that tracks inventories and the cost of goods sold on a day-to-day basis. Such a record helps managers control inventory levels and prepare interim financial statements. However, physical inventory counts should be taken at least once a year to check on the accuracy of the clerical records. In the perpetual inventory system, as sales are made, the journal entries are:

Merchandise Inventory	xxx	
Accounts Payable		xxx
Accounts Receivable	xxx	
Sales Revenue		xxx
Cost of goods sold	xxx	
Inventory		xxx

Thus, in the perpetual inventory system, the sale and the inventory reduction are recorded simultaneously. The periodic inventory system, conversely, does not involve a

day-to-day record of inventories or of the cost of goods sold. Instead the cost of goods sold and an updated inventory balance are computed only at the end of an accounting period, when a physical count of inventory is taken. The cost of the goods purchased is accumulated by recording the individual purchase transactions throughout any given reporting period, such as a year. The accountant computes the cost of goods sold by subtracting the ending inventories (determined by physical count) from the sum of the opening inventory and purchases. While the cost of goods sold under the perpetual system is computed instantaneously as goods are sold, under the periodic system. The computation is delayed.

$$\left[ \begin{array}{c} \text{Beginning} \\ \text{Inventory} \end{array} + \text{Purchases} \right] - \begin{array}{c} \text{Ending} \\ \text{Inventory} \end{array} = \begin{array}{c} \text{Cost of} \\ \text{Goods Sold} \end{array}$$

$$\begin{array}{c} \text{Goods Available} \\ \text{for Sale} \end{array} - \begin{array}{c} \text{Inventory Left} \\ \text{Over} \end{array} = \begin{array}{c} \text{Cost of} \\ \text{Goods Sold} \end{array}$$

The periodic system computes cost of goods sold as a residual amount. First, the beginning inventory is added to the purchases to obtain the total cost of goods available for sale. Then the ending inventory is counted, and its cost is deducted from the cost of goods available for sale to obtain the cost of goods sold.



#### 4. Cost of Merchandise Acquired: (Measuring Cost of Merchandise Acquired)

Some of the complexity in inventory accounting stems from the question of what constitutes the cost of the merchandise. To be more specific, does cost include all or part of the following: invoice price, transportation charges, trade and cash discounts, cost of handling and placing in stock, storage, purchasing department, receiving department, and other indirect charges? In practice, accountants usually consider the cost of merchandise to include only the invoice price plus the directly identifiable transportation charges less any offsetting discounts. The accounting for purchase returns, purchase allowances, and cash discounts on purchases is just the opposite of their sales counter-parts. Using the periodic inventory system, suppose gross purchases are LE 960000 and purchase returns and allowances are LE 75000. The summary journal entries are:

Purchases	960000	
Accounts Payable		960000
Accounts Payable	75000	
Purchase Returns & Allowances		75000

Suppose also that cash discounts of LE 5000 are taken upon payment of the remaining  $960000 - 75000 = 885000$  of payable. The summary journal entry is:

Accounts Payable	885000	
Cash discounts on purchases		5000
Cash		880000

The accounts cash discounts on purchases and purchase returns and allowances are deducted from purchases in calculating cost of goods sold.

### 5. Inward Transportation:

The major cost of transporting merchandise is typically the freight charges from the shipping point of the seller to the receiving point of the buyer. When the seller bears this cost, the terms are stated on the sales invoice as F.O.B. (free on board) destination. When the buyer bears this cost, the terms are stated as F.O.B. Shipping point. In theory, any transportation costs become by the buyer should be added to the cost of the inventory acquired. In practice, several different items are typically ordered and shipped simultaneously. Therefore it is often difficult to allocate freight costs among the items. In addition, management may want to compile freight costs separately to see how they compare with regard to periods and modes of transportation. Consequently, accountants frequently

use a separate transportation cost account, labeled as freight in, transportation in, inbound transportation, or inward transportation.

Freight in appears in the purchases section of an income statement as an additional cost of the goods acquired during the period. On the other hand, freight out represents the costs borne by the seller and is shown as a "shipping expense" which is a form of selling expense. Thus freight in affects the gross profit section of an income statement for the buyer, but freight out does not and therefore appears below the gross profit line on the seller's income statement.

#### **6. Principal Inventory Valuation Methods:**

Each period, accountants must divide the cost of beginning inventory and merchandise acquired between cost of goods sold and cost of items remaining in ending inventory. Under a perpetual system, a cost must be assigned to each item sold. Under a periodic system, the costs of the items remaining in ending inventory must be measured. Regardless of the inventory system, cost of individual items must be determined by some inventory valuation method. Four principal inventory valuation methods have been generally accepted: specific identification, FIFO, LIFO, and weighted-average. If unit

prices and costs did not fluctuate. All inventory methods would show identical results. But prices change, and these changes raise central issues regarding cost of goods sold (income measurement) and inventories (asset measurement).

## **7. Four Major Methods:**

### **A. Specific Identification Method:**

This method concentrates on the physical linking of the particular items sold. It uses physical observation or the labeling of items in stock with individual numbers or codes this method is easy and economically justifiable for relatively expensive merchandise like custom artwork, diamond jewelry, and automobiles. However, most organizations have vast segments of inventories that are too numerous and insufficiently valuable per unit to warrant such individualized attention. Since the cost of goods sold is determined by the specific item handed to the customer, this method permits managers to manipulate income and inventory values by filling a sales order from a number of physically equivalent items with different historical costs.

### **B. First-In, First-Out (FIFO):**

This method assumes that the stock acquired earliest is sold (used up) first. It does not track the physical flow of individual items. When the first cost represents goods



sold, the last cost represent goods still on hand. By using the latest cost to measure the ending inventory, FIFO tends to provide inventory valuations that closely approximate the actual market value of the inventory at the balance sheet date. In addition, in periods of rising prices, FIFO leads to higher net income. Higher reported incomes may favorably affect investor attitudes toward the company. Similarly, higher reported incomes may lead to higher salaries, higher bonuses, or higher status for the management of the company. Unlike specific identification, FIFO specifies the order in which acquisition costs will become cost of goods sold, so management can not affect income by choosing to sell one identical item rather than another.

### **C. Last-In, First-Out (LIFO):**

This method assumes that the stock acquired most recently is sold (used up) first. While FIFO associates the most recent cost with inventories, LIFO treats the most recent cost as cost of goods sold, LIFO provides an income statement perspective in the sense that net income measured using LIFO combines current sales prices and current acquisition cost. In a period of rising prices and constant or growing inventories, LIFO yields lower net income.



**D. Weighted – Average Cost:**

This method computes a unit cost by dividing the total acquisition cost of all items available for sale by the number of units available for sale. The weighted average costing method produces less extreme results than either LIFO or FIFO relative to both the income statement and the balance sheet.

**8. How To Select Inventory Valuation Methods:**

The four inventory methods have different benefits and drawbacks. Among the issues facing management when choosing a method are such questions as: Which method provides the highest reported net income? Which method provides management the most flexibility to affect reported earnings? How do the methods affect income tax obligations? Which method provides an inventory valuation that approximates the actual value of the inventory?

**9. Lower-Of-Cost-Or-Market Method:**

Under the lower-of-cost-or-market method (LCM), a market-price test is run on an inventory costing method. The current market price is compared with historical cost derived under one of the four primary methods: specific identification, FIFO, LIFO, Average. The lower of the two-current market value or historical cost-is

conservatively selected as the basis for the valuation of goods at a specific inventory date. When market value is lower and is used for valuing the ending inventory, the effect is to increase the amount reported as cost of goods sold.

LCM is an example of conservatism. Conservatism means selecting methods of measurement that yield lower net income, lower assets, and lower stockholders' equity in the early years. Conservatism was illustrated in accounts receivable with the use of an allowance for bad debts. We estimated and recorded losses on uncollectible accounts before they were certain. With inventories, conservatism dictates the use of the LCM method.

**Questions**

13. "There are two major steps in accounting for inventories". What are they?
14. Distinguish between F.O.B. destination and F.O.B. shipping point.
15. "Freight out should be classified as a direct offset to sales, not as an expense". Do you agree? Explain.
16. What are the two phases of a sales transaction?
17. Distinguish between the perpetual and periodic inventory systems.
18. "All advantage of the perpetual inventory system is that a physical count of inventory is unnecessary. The periodic method requires a physical count to compute cost of goods sold". Do you agree? Explain.
19. Name the four inventory methods that are generally accepted. Give a brief phrase describing each.
20. "An inventory profit is a fictitious profit". Do you agree? Explain.
21. "Purchases of inventory at the end of a fiscal period can have a direct effect on income under LIFO". Do you agree? Explain.

22. "Conservatism always results in lower reported profits". Do you agree? Explain.
23. What does market mean in inventory accounting?
24. "The lower-of-cost-or-market method is inherently inconsistent". Do you agree? Explain.
25. Express the cost of goods sold section of the income statement as an equation.
26. If a company uses a FIFO cost flow assumption, will it report the same cost of goods sold using the periodic inventory method that it reports using the perpetual method? Why or why not?
27. Assume that the physical level of inventory is constant at the beginning and end of year and that the cost of inventory items is rising. Which will produce a higher-ending inventory value, LIFO or FIFO?
28. Will LIFO or FIFO produce higher cost of goods sold during a period of falling prices? Explain.

## Demonstration Problems

1- El-Zamalek Company operates about 158 super drugstores. They also have a chain of discount auto supply stores and own 17 paper cutter stores. Some results for fiscal 20×0 were as follows (in thousands):

- Sales LE 574061
- Cost of merchandise sold LE 400756
- Net earnings LE 10363
- Beginning merchandise inventory LE 76093
- Ending merchandise inventory LE 83308

### Required:

- 1- Calculate the 20×0 gross profit percentage for EL-Zamalek Company.
- 2- Calculate the inventory turnover ratio.
- 3- What gross profit would have been reported if inventory turnover in 20×0 had been 7, the gross profit percentage calculated in requirement 1 had been achieved, and the level of inventory was unchanged?

### Solution to Problem Two:

- 1- Gross Profit = Sales - Cost of merchandise sold  

$$= \text{LE } 574061 - \text{LE } 400756$$

$$= \text{LE } 173305$$

$$\text{Gross profit percentage} = \text{Gross Profit} \div \text{Sales}$$



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Valuing Inventories, Cost of Goods Sold, and Gross Profit

$$= \text{LE } 173305 \div \text{LE } 574061$$

$$= 30,2\%$$

$$\begin{aligned} 2- \text{ Inventory Turnover} &= \frac{\text{cost of merchandise sold}}{\text{Average merchandise inventory}} \\ &= \frac{\text{LE } 400756}{\frac{(\text{LE } 83308 + \text{LE } 76093)}{2}} \\ &= \frac{\text{LE } 400756}{\text{LE } 79701} \\ &= 5.0 \end{aligned}$$

$$\begin{aligned} 3- \text{ Cost of merchandise sold} &= \text{Inventory turnover} \times \\ &\quad \text{Average merchandise inventory} \\ &= 5 \times \text{LE } 79701 \\ &= \text{LE } 557907 \end{aligned}$$

$$\text{Gross profit percentage} = (\text{sales} - \text{cost of merchandise sold}) / \text{sales}$$

$$30,2\% = (S - \text{LE } 557907) \div S$$

$$0,302 \times S = S - \text{LE } 557907$$

$$S - (0,302 \times S) = \text{LE } 557907$$

$$S \times (1 - 0,302) = \text{LE } 557907$$

$$S = \text{LE } 557907 \div (1 - 0,302)$$

$$S = \text{LE } 799294$$

$$\text{Gross profit} = \text{Sales} - \text{Cost of merchandise sold}$$

$$= \text{LE } 799294 - \text{LE } 557907$$

$$= \text{LE } 241387$$

The increase in inventory turnover from 5,0 to 7,0 would raise gross profit from LE 173305 to LE 241387.

## Problem

1- W Ld had the following inventory transactions during the month of January.

1-1 beginning inventory, 5000 units @ 2.00	LE 10000
Week 1, purchases 2000 units @ LE 2.10	4200
Week 2, purchases 3000 units @ LE 2.20	6600
Week 3, purchases 1000 units @ LE 2.30	2300
Week 4, purchases 1000 units @ LE 2.40	2400

On January 31, a count of the ending inventory was completed, and 6500 units were on hand. Compute cost of goods sold and ending inventory using LIFO, FIFO, and weighted-average inventory methods.

## **Chapter Three**

### **Long-Lived Assets And Depreciation**

This chapter shows how to account for long-lived assets. It discusses the differences in accounting for various kinds of assets—land, buildings and equipment, Natural resources, and intangible assets. The main issue is when to charge the cost of a long-lived assets as an expense on income statement. For example. If an asset lasts 10 years, how much of its cost should be assigned to each of the 10 years it is used?

#### **1. Overview of Long-Lived Assets:**

Most business entities hold some major assets, such as land, buildings, Equipment, natural resources, and patents. These resources are often described as long-lived assets because they are held for an extended time. A distinguishing feature of these assets is their underlying purpose : to facilitate the production and sale of goods or services to customers. That is, these assets by themselves are not available for sale in the ordinary course of business. Thus a delivery truck is a long-lived asset for nearly all companies; an exception is a truck dealer, who would regard trucks as merchandise inventory.

## **2. Tangible and Intangible Assets:**

The major long-lived assets are often divided into tangible and intangible categories. Tangible assets (also called fixed assets or plant assets) are physical items that can be seen and touched. Example are land, natural resources, buildings, and equipment. In contrast, intangible assets are rights or economic benefits, such as franchises, patents, trademarks, copyrights. And goodwill, that are not physical in nature. With the exception of land, the acquisition costs of all long-lived assets are typically charged to expense over a period of years in some systematic way. Such expenses are called depreciation, depletion, or amortization. Depending on the type of asset in question.

The word amortization is a general term that means the systematic reduction of a lump-sum amount therefore there is nothing inherently wrong with using it to describe the allocation of the costs of all long-lived assets to time periods. However, when referring to long-lived assets, amortization usually means the allocation of the costs of intangible assets to the periods that benefit from these most tangible assets, such as buildings, machinery, and equipment, are depreciated. Exceptions are land, which remains on the books at its original acquisition cost, and natural resources, which are depleted. Depletion is the

process of allocating the cost of natural resources to the periods in which the resources are used.

### **3. Acquisition cost of Tangible Assets:**

The acquisition cost of all long-lived assets is their cash equivalent purchase price, including incidental costs. The acquisition cost of land includes charges to the purchaser for the cost of land surveys, legal fees, title commissions, transfer taxes, and even the demolition costs of old structures that might be torn down to get the land ready for its intended use. Land such as plant sites or building sites is ordinarily accounted for separately from other tangible assets. Under historical cost accounting, Land is carried indefinitely at its original cost. As a result, if land is held for many years of persistent inflation, its carrying amount is likely to be far below its current market value.

Unlike land, buildings and equipment wear out or become obsolete. In other words, the services provided by buildings and equipment are consumed. Depreciation recognizes the consumption of these services. The cost of buildings, Plant, and equipment should include all costs of acquisition and preparation for use.



#### **4. Depreciation Methods:**

Depreciation is one of the main factors distinguishing accrual accounting from cash-basis accounting. Suppose a long-lived asset is purchased for cash. Cash-basis accounting would recognize the entire cost of the asset when it is purchased. In contrast, accrual accounting allocates the cost in the form of depreciation over the periods the asset is used. Equipment and similar long-lived assets are initially recorded at cost. The major accounting difficulties center on the choice of a pattern of depreciation – that is, the allocation of the original cost to the particular periods that benefit from the use of assets.

In particular, note that accountants regard depreciation as a process of allocating the acquisition cost to the particular periods or products that are related to the use of the depreciation is frequently misunderstood. It is not a process of valuation. In everyday use, we might say that an auto depreciates in value, meaning a decrease in its current market value. But to an accountant, depreciation is not a technique for approximating current values such as replacement costs or resale values. It is simply cost allocation.

The amount of the acquisition cost to be allocated over the total useful life of the asset as depreciation is the

depreciable value. It is the difference between the total acquisition cost and the predicted residual value. The residual value is the amount received from disposal of long-lived asset at the end of its useful life. Synonyms for residual value are terminal value, disposal value, salvage value, and scrap value.

A crucial factor in determining the yearly amount of depreciation is the prediction of an asset's useful life. The useful life (or economic life) is influenced by predictions of physical wear and tear. However, the useful lives are almost always more heavily affected by economic and technological factors than by when equipment may physically wear out. For example, the rapidly increasing speed and decreasing cost of computers have led business to replace functioning equipment long before it wears out. Useful life estimates can significantly affect depreciation expense and hence income. The listing of depreciation amounts for each year of an asset's useful life is called a depreciation schedule. We will use the following symbols and amounts to compare various depreciation methods.

C	= total acquisition cost on Dec. 31, 20x2	L.E. 41000
R	= residual value	L.E. 1000
N	= estimated useful life	4 year
D	= amount of depreciation	???

### 5. Straight – Line Depreciation:

Straight-line depreciation spreads the depreciable value evenly over the useful life of an asset. It is by far the most popular method for corporate reporting to shareholders. The annual depreciation expense that would appear on the income statement is:

$$\begin{aligned}
 D &= \frac{\text{Acquisition Cost} - \text{Residual Value}}{\text{Years of Useful Life}} \\
 &= \frac{C - R}{N} \\
 &= \frac{41000 - 1000}{4} \\
 &= \text{L.E. } 10000 \text{ per year}
 \end{aligned}$$

### 6. Depreciation Based On Units:

When physical wear and tear is the dominating influence on the useful life of the asset, accountants often based depreciation on units of service or units of production rather than on the units of time so commonly used. Depreciation based on units of service is called unit depreciation. Suppose the asset in our example were a large truck that would be kept for a useful life of 200 thousand miles. Depreciation computed on a mileage basis is:

$$\begin{aligned}
 &= \frac{C - R}{N} \\
 &= \frac{41000 - 1000}{200000 \text{ miles}} \\
 &= 0.20 \text{ per mile}
 \end{aligned}$$

For some assets, such as transportation equipment, this depreciation pattern may have more logical appeal than the straight-line method. However, the unit depreciation method is not widely used! Probably for two major reasons:

- Straight-line depreciation frequently produces approximately the same yearly depreciation amounts.
- Straight-line depreciation entails less data-collection costs. The entire depreciation schedule can be set at the time of acquisition, and detailed records of units of service are not necessary.

A commonly encountered example of unit depreciation relates to the use of mining equipment. Instead of writing such costs off on a time basis, mining companies depreciate the equipment costs at a rate per ton of minerals extracted.



## 7. Double-Declining-Balance Depreciation:

Any pattern of depreciation that writes off depreciable costs more quickly than the ordinary straight-line method based on expected useful life is called accelerated depreciation. Although an infinite number of accelerated depreciation methods are possible, only two are commonly used: declining-balance and sum of the years' digits methods. The most popular form of accelerated depreciation is the double - declining - balance (DDB) method. DDB is computed as follows:

- Compute a rate by dividing 100% by the years of useful life. This result is the straight-line rate. Then double the rate. In our example, The straight-line rate is  $100\% / 4 \text{ years} = 25\%$ . The DDB rate would be  $2 \times 25\%$  or 50%.
- To compute the depreciation for any Asset, ignore the residual value and multiply the beginning book value for the year by the DDB rate.

The DDB method can be illustrated as follows:

- $\text{DDB} = 2 (100\% / N)$
- $\text{DDB rate, 4-year life} = 2 (100\% / 4) = 50\%$
- $\text{DDB depreciation} = \text{DDB rate} \times \text{Beginning book value}$



- For year 1 :  $D = 0.50 (41000)$   
 $= \text{L.E. } 20500$
- For year 2 :  $D = 0.50 (41000 - 20500)$   
 $= \text{L.E. } 10250$
- For year 3 :  $D = 0.50 [41000 - (20200 + 10250)]$   
 $= \text{L.E. } 5125$
- For year 4 :  $D = 0.50 (41000 - 35875)$   
 $= \text{L.E. } 2563$

### 8. Sum - Of - The - Years' - Digits Depreciation:

Another method of accelerated depreciation is the sum-of-the-years' digits (SYD) method. DuPont is among the few companies currently using SYD for reporting to stockholders. Sum of the digits is the total of the numbers representing the years of life.

For example, assuming a four-year life,  $1 + 2 + 3 + 4 = 10$ . This sum becomes the denominator in a key fraction as follows:

SYD depreciation = Fraction  $\times$  Depreciable amount

$$\text{For year 1 : } D = \frac{4}{10} (40000) = \text{L.E. } 16000$$

$$\text{For year 2 : } D = \frac{3}{10} (40000) = \text{L.E. } 12000$$

$$\text{For year 3 : } D = \frac{2}{10} (40000) = \text{L.E. } 8000$$

For year 4 :  $D = \frac{1}{10} (40000) = \text{L.E. } 4000$

### 9. Depletion of Natural Resources:

Natural resources such as minerals, oil, and timber are sometimes called wasting assets. Depletion is the gradual exhaustion of the original amounts of these resources acquired. Depletion differs from depreciation because depletion focuses narrowly on a physical phenomenon and depreciation focuses more broadly on any cause of the reduction of the economic value of a fixed asset, including physical wear and tear pulse obsolescence.

The costs of natural resources are usually classified as fixed assets. However, the investment in natural resources can be linked to a lump-sum acquisition of massive quantities of inventories under the ground (iron ore) or above the ground (timber). Depletion expense is the measure of that portion of this "long-term inventory" that is used up in a particular period.

For example, a coal mine may cost LE 20 million and originally contain an estimated one million tons. The depletion rate would be  $\text{LE } 20 \text{ million} / 1 \text{ million tons} = \text{LE } 20 \text{ per ton}$ . If 100000 tons were mined during the first year, the depletion would be  $100000 \times 20$ , or 2 million; and so forth. As the above example shows, depletion is

measured on a units – of – production basis. The annual depletion may accounted for as a direct reduction of the mining asset, or it may be accumulated in a separate account similar to accumulated depreciation.



## **Please Read This Article**

### **To Capitalize Or Not to Capitalize**

Late in the afternoon on St. Patrick's Day, 1992, Chambers Development Company, a rapidly growing waste-management firm, announced that it was changing the way it accounted for certain costs associated with landfill development. Instead of capitalizing indirect costs associated with landfill projects and listing them with the assets on the balance sheet, Chambers announced that it would follow industry practice and report those expenditures as expenses of the period in which they are incurred. The change had the effect of to \$1.5 million. To some observers, an accounting decision such as what to capitalize and what to charge immediately to expense is not very interesting. However, stockholders of Chambers Development soon became extremely interested. Chambers Development's stock price dropped from \$30.50 to 11.50, a fall of 62%, in trading the day after the announcement.

Chambers Development's management defended the change, maintaining that the capitalization in previous years had been warranted because Chambers had been a company in development. Now as an operating company, expensing seemed appropriate. At issues were cost such as the salaries of executives for that portion of their time

spent on developing new landfills. Also in question were the company's costs related to the public relations and legal aspects of the landfills.

The firm's auditor approved both the previous method and the change. In fact, speculation arose that the auditors forced the change because the amount of capitalized development costs had become so large that the amounts did not realistically represent costs that would be recovered in the future. Therefore the costs did not qualify as assets.

There is no easy answer as to what should be capitalized. Chambers spent millions to gain landfill permits, and there certainly is value to such permits. However, many accountants favor a conservative approach that recognizes all questionable items as expenses as soon as possible. The one thing that is clear is that decisions to capitalize expenditures can greatly affect stockholders.



## **Demonstration Problems**

### **Problem One:**

"The net book value of plant assets is the amount that would be spent today for their replacement". Do you agree? Explain.

### **Solution to Problem One:**

Net book value of the plant assets is the result of deducting accumulated depreciation from original cost. It is a result of cost allocation, not valuation. This process does not attempt to reflect all the technological and economic events that may affect replacement value. Consequently, there is little assurance that net book value will approximate replacement cost.

### **Problem Two:**

"Accumulated depreciation provides cash for the replacement of fixed assets". Do you agree with this quotation from a business magazine? Explain.

### **Solution to problem Two:**

Accumulated depreciation is a contra asset. It is the amount of the asset already used up and in no way represents a direct stockpile of cash for replacement.

## Questions

1. Distinguish between tangible and intangible assets.
2. Distinguish between amortization, depreciation, and depletion.
3. "the accounting process of depreciation is allocation, not valuation". Explain.

## Problem

1. Compute the first three years of depreciation for the following assets:
  - a. Conveyor, five-years life, LE 37000 cost, straight-line method, LE 2000 residual value.
  - b. Truck, six-year useful life, LE 18000 cost, DDB method, LE 500 residual value.
  - c. Copy machine four-year useful life, LE 6000 cost, SYD method, LE 1000 residual value.

## **Practical Insight**

A growing threat to the business community is the so-called credit swindler- the customer who is out to defraud suppliers credit swindlers range from bad check passers to big- time operators who set up shell companies to obtain large quantities of goods from unsuspecting suppliers and then sell the goods and go into bankruptcy or disappear. These credit swindlers have certain characteristics that can be recognized. It has been suggested that 20 characteristic are common to credit swindlers. Many legitimate business may have some of these characteristics. But if one customer has several. Care should be taken in extending credit these 20 characteristics can be divided into (1) physical, (2) financial, and (3) managerial categories.

The following 10 physical characteristics may indicate that a potential customer is a credit swindler:

1. The company has a name very similar to a well-established company.
2. The company has a prestigious – sounding name (such as American, Universal).
3. The business is less than a year old (often less than six months old).
4. The company has no exterior sign advertising its business at its address.

5. The customer rents its trucks and automobiles.
6. The customer rents its furniture (which can be quickly left behind).
7. The customers phone is answered by an answering service.
8. The customer's checks have low numbers, are drawn on a distant bank, or have a post office box for an address making the company difficult to trace.
9. The customer's credit references provide good references without looking them up, indicating the possible of a collaborator.
10. The customer's phones in order leaving on written documentation of fraud.

The following five financial characteristics may indicate that a customer is not legitimate:

1. The customer suddenly makes a substantial increase in the amount of purchases.
2. The customer's check balances or the customer pays invoices with third party checks.
3. The customer's financial statements indicate liquidity but its payment history is poor.
4. The customer provides unaudited financial statements when applying for credit.

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*Chapter Three*

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5. The customer's net worth is overstated (many companies establish credit on the basis of a customer's net worth).

The following five managerial characteristics may indicate potential trouble:

1. The managers are relatively young and wear casual clothing and much jewelry.
2. Conversations with the managers are long and excessively friendly.
3. The customer's buyer is aggressive and threatens to take the order elsewhere if immediate credit isn't approved.
4. The managers claim memberships in bogus social organization.
5. The complain excessively about service credit collections.

A supplier should get as much information as possible about a customer before granting credit. A completed credit application and check an outside credit agency is a necessity. The more facts available, the better the credit decision.

**Source:** Adapted from T.M. Reilly, "20 Telltale Signs of Credit Fraud". Practical Accountant (April 1987), PP. 68-69.



## **Practical Insight**

Accountants see it all the time – management by ignorant. An owner doesn't realize his business is in trouble until it is too late. "Many businesses go under", says Aubrey D. Boutwell, a CPA, and the owners don't even know what their problems are. All they know is they end up with no money and can't pay their bills".

Seat-of the pants operators fail to monitor all aspects of their businesses. They tend to think everything is fine if sales are increasing and there is money in the bank. Typically, they consider financial statements a necessary evil to get a bank loan. They don't realize that what they do in the business is reflected in the financial statements. They don't pay much attention to the information accountants give them.

Keeping tabs on a small company's health isn't as difficult as accounting – shy owners believe. It can be as simple as keeping good records and compiling results each month and analyzing them. Simple analysis can disclose important information. For instance, a slight month – to – month increase in payroll cost appears insignificant until it is multiplied by 12.

Which figures to keep an eye on varies by the type of business, accountants say. In labor – intensive businesses, payroll cost as a percentage of gross revenue is very important to watch.

Consulting, engineering, architecture, accounting. And law firms make or lose money mainly on how much time the professional staff bill clients. It's easy to have people spinning their wheels, spending time on things they can't charge back to clients.

Small-business owners should realize they are operating in a tough market. The market is becoming more unforgiving all the time competition is becoming more sophisticated than ever before.

Size is no excuse to run a sloppy operation. Firms of all sizes are very profitable, but firms of all sizes go bankrupt.

**Source:** Excerpted from "Watch the Numbers to learn if the Business is doing well" the wall street journal (August 26, 1975) Reprinted by permission of the Wall Street Journal, Dow Jones & Company. Inc., 1985.

# **Part Two**

 pdfelement

**by**

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## CHAPTER ONE

# CORPORATIONS

*After studying this chapter you should be able to meet these Learning Objectives:*

- Discuss the advantages and disadvantages of organizing a business as a corporation.
- Explain the rights of stockholders and the roles of corporate directors and officers.
- Contrast the balance sheet presentation of the ownership equity in a corporation and in a sole proprietorship.
- Account for the issuance of capital stock.
- Contrast the features of common stock with those of preferred stock.
- Discuss the factors affecting the market price of preferred stock and of common stock.
- Explain the meaning and significance of book value, market value, and par value of capital stock.



## Introduction

In this chapter our study of businesses organized as corporations. *First*, we describe the nature of a corporation, explain the concept of a "**separate legal entity**," and discuss the advantages and disadvantages of the corporate form of organization. *Next*, we focus attention upon the stockholders' equity section of a corporate balance sheet. As part of the contributed capital the Paid-in capital is distinguished from retained earnings, and preferred stock is contrasted with common stock. Distinctions are drawn among the concepts of *par value*, *book value*, and *market value*. Various stockholders' equity transactions are illustrated and explained, including the issuance of capital stock and the declaration and payment of cash dividends. Also covered are such topics as subscriptions to capital stock, accounting for donated capital, and the computation of book value per share.

Who owns Commercial International Bank (CIB) in the A.R.E.? The owners of a corporation are called **stockholders**. Stockholders in CIB include over one million men and women, as well as many pension funds, mutual investment funds, labor unions, banks, universities, and other organizations. Because a corporation can be used to pool the

savings of any number of investors, it is an **ideal** means of obtaining the capital necessary for large-scale business activities.

Nearly, all large businesses and many small ones are organized as corporations. There are many more sole proprietorships and partnership than corporations, but in money (dollars or Egyptian pounds) volume of business activity, corporations hold an impressive lead. *Now because of the dominant role of the corporation in our economy, it is important for everyone interested in business, to have an understanding of corporations and their accounting practices.*

## **What is a Corporation?**

A Corporation is a **legal entity** having an existence separate and distinct from that of its owners. In the eyes of the law a corporation is an "**artificial person**" having many of the rights and responsibilities of a real person

A Corporation, as a separate legal entity, may own property in its own name. Thus, the assets of a corporation belong to the corporation itself, not to the stockholders. A corporation has legal status in court- that is may sue and be sued as if it were a person. As a legal entity, a corporation

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*Chapter One*

may enter into contracts, is responsible for its own debts, and pays income taxes on its earnings.

## **Advantages of the Corporate Form of Organization**

The corporation offers a number of advantages not available in other form of organization. Among these advantages are the following:

### **1) No personal liability for stockholders.**

Creditors of a corporation have a claim against the assets of the corporation, not against the personal property of the stockholders. Thus, the amount of money which stockholders risk by investing in a corporation is limited to the amount of their investment. To many investors, this is the most important advantage of the corporate form.

### **2) Ease of accumulating capital.**

Transferable shares of stock evidence ownership of a corporal. The sale of corpora' ownership in units of one or more shares permits both large and small investors to participate in ownership of the business. Some corporations actually have more than a million individual stockholders.

### **3) Readily transferable ownership shares.**

Shares of stock may be sold by one investor to another without dissolving or disrupting the business organization.

The shares of most large corporations may be bought or sold by investors in organized markets. Investments in these shares have the advantage of liquidity, because investors may easily convert their corporate ownership into cash by selling their stock.

#### **4) Continuous existence.**

The continuous life of the corporation, despite changes in ownership, is made possible by the issuance of transferable shares of stock.

#### **5) Professional management.**

The stockholders own the corporation, but they do not manage it on a daily basis. To administer the affairs of the corporation, the stockholders elect a **board of directors**. The directors, in turn, hire a president and other corporate officers to manage the business.

### ***Disadvantages of the Corporate Form of Organization***

Among the disadvantages of the corporation are:

#### **1) Heavy taxation.**

The income of a partnership or a sole proprietorship is taxable only as personal income to the owners of the business. The income of a corporation, on the other hand, is



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subject to income taxes, which must be paid by the corporation.

If a corporation distributes its earnings to stockholders, the stockholders must pay personal income taxes on the amounts they receive..

### 2) Greater regulation.

A corporation comes into existence under the terms of state laws, and these same laws may provide for considerable regulation of the corporation's activities.

### 3) Separation of ownership and control.

The separation of the functions of ownership and management may be an advantage in some cases, but a disadvantage in others.

## ***Formation of a Corporation***

A Corporation is created by obtaining a corporate **charter** from the state, which the company is to be incorporated. To obtain a corporate charter, an application called the **articles of incorporation** is submitted to the state corporations' commissioner or other designated official. Once the charter is obtained, the stockholders in the new corporation hold a meeting to elect **directors** and to pass **bylaws** as a guide to the company affairs. The directors in turn hold a meeting at which officers of the corporation appointed.



**Organization Costs:** The formation of a corporation is a much more costly step than the organization of a partnership. The necessary costs include the payment of an incorporation fee to the state, the payment of fees attorneys for their services in drawing up the articles of incorporation payments to promoters, and a variety of other outlays necessary to the corporation into existence. These costs are charged to an asset account called Organization Costs,

The incurring of these organizations costs leads to the existence of the corporate entity; consequently, the benefits derived from these costs may be regarded as extending over the entire life of the corporation.

**Rights of Stockholders:** The ownership of stock in a corporation usually carries the following basic rights:

(1) To vote for directors, and thereby to be represented in the management of the business. When a corporation issues both common stock and preferred stock, voting rights generally are granted only to the holders of common stock. These two different types of capital stock will be discussed in detail later in this chapter.

(2) To share in profits by receiving dividends declared by the board of directors. However, the earning of a profitable corporation may be distributed to stockholders in the form of

cash dividends. The payment of a dividend always requires formal authorization by the board of directors.

(3) To share in the distribution of assets if the corporation is liquidated. When a corporation ends its existence, the creditors of the corporation must first be paid in full; any remaining assets are divided among stockholders in proportion to the number of shares owned.

**Functions of the Board of Directors:** The primary functions of the board of directors are to manage the corporation and to protect the interests of the stockholders. At this level, management may consist principally of formulating policies and reviewing acts of the officers.

**Functions of Corporate Officers:** Corporate officers are the top level of the professional managers appointed by the board of directors to run the business. These officers usually include a president or chief executive officer (CEO), one or more vice presidents, a controller, a treasurer, and a secretary. A vice president is often made responsible for the sales function other vice presidents may be given responsibility for such important functions as personnel, finance, and production.

The responsibilities of the controller, treasurer, and secretary are most directly related to the accounting phase of business operation.

## Stockholders' Equity

The sections of the balance sheet showing assets and liabilities are much the same for a corporation as for a sole proprietorship as well as partnership. The owner's equity section is the principal point of contrast. In the balance sheet of a corporation, the term **stockholders' equity** is used instead of owner's equity. The owners' equity in a corporation, as in other types of business organizations, is equal to the assets of the, business minus the liabilities. However, state laws require that the stockholders' equity section of a corporation balance sheet clearly indicate the **source** of the owners' equity. The two basic sources of owners' equity are (1) investment by the stockholder (**paid-in capital**), and (2) earnings from profitable operation of the business (**retained earnings**).

When stockholders invest cash or other assets in the business, the corporation issues to them in exchange shares of capital stock as evidence their ownership. In the simplest case, capital invested by the stockholder is recorded in the corporation's accounting records by a credit to an account entitled **Capital**

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**Stock.** The capital paid in by stockholders is regarded as permanent capital not ordinarily subject to withdrawal. The increase in stockholders' equity arising from profitable operation is called **retained earnings**. At the end of the year the balance of the Income Summary account is closed into the Retained Earnings account.

**For example**, if net income for the year is L.E. 90,000, the closing entry will be as follows:

	Dr.	Cr.
Income Summary .....	90,000	
Retained Earnings.....		90,000

(To close the Income Summary account by transferring the year's net income into the Retained Earnings account)

If the company operates at a loss of, Say, L.E. 45,000, the Income Summary account will have a debit balance. The account must then be credited to close it. The closing entry will be:

	Dr.	Cr.
Retained Earnings .....	45,000	
Income Summary .....		45,000

(To close the Income Summary account by transferring the year's net loss into the Retained Earnings account)



If a corporation has sufficient cash, a distribution of profits may be

made to stockholders. Distributions of this nature are termed dividends

and decrease both total assets and total stockholders' equity.

Because dividends are regarded as distributions of earnings; the decrease in stockholders' equity is recorded in the Retained Earnings account.

Thus, the amount of retained earnings at any balance sheet date represents the accumulated earnings of the company since the date of incorporation, minus any losses, and minus all dividends.

Some people mistakenly believe that retained earnings represents a

fund of cash available to a corporation. Retained earnings is not an

asset; it is an element of stockholders' equity. Although the amount of retained earnings indicates the portion of total assets, which are financed by earning and retaining net income, it does not indicate the form in which these resources are currently held. The resources generated by retaining profits may have been invested in land, buildings, equipment and any other kind of asset.



## Stockholders' Equity in the Balance Sheet:

For a corporation with L.E. 2,000,000 of capital stock and L.E. 700,000 of retained earnings, the stockholders' equity section of the balance sheet will appear as follows:

### Stockholders' equity:

Capital stock	L.E. 2,000,000
Retained earnings	<u>700,000</u>
<b>Total Stockholders' equity</b>	<b>L.E. 2,700,000</b>

If the same company had been unprofitable and had incurred losses aggregating L.E. 150,000 since its organization, the stockholders' equity section of the balance sheet would be as follows:

### Stockholders' equity:

Capital stock.....	L.E. 2,000,000
Less: Deficit.(losses) . . . .	<u>150,000</u>
<b>Total Stockholders' equity</b>	<b>L.E. 1,850,000</b>

This second illustration tells us that L.E. 150,000 of the original L.E. 2,000,000 invested by stockholders has been lost. Note that the capital stock in both illustrations remains at the fixed amount of L.E. 2,000,000, the stockholder original investment.. The accumulated profits or losses since the

organization of the corporation are shown as **retained earnings** or as a **deficit** and are not intermingled with the paid-in capital. The term deficit indicates a negative amount of retained earnings.

### Cash Dividends:

The term dividend, when used by itself, is generally understood to mean a distribution of cash by a corporation to its stockholders. Dividends are stated as a specific amount per share of capital stock, as, for example, a dividend of L.E. 2 per share. The amount received by each stockholder who owns 100 shares will receive a check for L.E. 200.

Because a dividend is declared on one date by the board of directors and paid at another date, two separate journal entries are necessary.

To illustrate the entries for **declaration** and **payment** of a cash dividend, assume that a corporation declares a dividend of L.E. 2.5 per share on 200,000 shares, outstanding stock. The dividend is declared on December 15 and is payable on January 26. The two entries would be as follows:

	Dr.	Cr.
<b>Dec. 15 :</b> Retained Earnings .....	500,000	
Dividends Payable.....		500,000

(To record declaration by the board of directors)

of a cash dividend of L.E. 2.5 per share on the 200,000 shares of stock outstanding).

	Dr.	Cr.
<b>Jan. 26:</b> Dividends Payable .....	500,000	
Cash.....		500,000

(To record payment of the L.E. 2.5 per share dividend declared Dec. 15 on the 200,000 shares of stock outstanding).

The account Dividends Payable, which was credited at the date of

declaring the dividend, is a current liability. If a company has more than one issue of capital stock (such as both common stock and preferred stock), it may use a separate Dividends Payable account for each issue.

## What Is Capital Stock?

The caption **capital stock** in the balance sheet of a corporation represents the amount invested by the owners of the business. When the owners of a corporation invest cash or other assets in the business, the corporation issues capital stock as evidence of the investors' ownership equity.

The basic *unit* of capital stock is called a *share*, but a corporation may issue capital stock certificates in denominations of 1 share, 150 shares, or any other number. The total number of shares of capital stock outstanding at any

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given time represents 100% ownership of the corporation.

**Outstanding** shares are those **in the hands of stockholders**.

The number of shares owned by an individual investor determines the extent of his or her ownership of the corporation.

Assume, for example, that Egypt Corporation issues a total of 60,000

shares of capital stock to investors in exchange for cash. If you were to

acquire 6,000 shares of the 60,000 shares, you would own a 10% interest in the corporation.

### **Authorization and Issuance of Capital Stock:**

The articles of incorporation specify the number of shares of capital stock which a corporation is authorized to issue and the **par value (PV)**, if any, per share. Large issues of capital stock to be offered for sale to the general public must be approved in Egypt by state officials and in the U.S.A. by the SEC as well as by state officials. The corporation may choose not to issue immediately all the authorized shares: in fact, it is customary to secure authorization for a larger number of shares than presently needed. In future years, if more capital is needed, the previously authorized shares will be readily available for issue; otherwise, the corporation would be forced



to apply to the state for permission to increase the number of authorized shares.

**What is a Par Value?** Par value (or stated value) represents the legal capital per share- the amount below which stockholders' equity cannot be reduced except by losses from business operations or special legal action. A Corporation cannot declare a dividend if such action would cause the stockholders' equity to fall below the par value of the outstanding shares. Par value, therefore, may be regarded as a minimum cushion of equity capital existing for the protection of creditors.

Because of the legal restrictions associated with par value, state laws require corporations to show separately in the stockholders' equity section of the balance sheet the par value of shares issued.

A Corporation may set the par value of its stock at L.E.1 per share, L.E.4 per share, or any other amount that it chooses.

The par value of the stock is **no indication** of its **market value**; the par value merely indicates the amount per share to be entered in the Capital Stock account.

### **Issuance of Par Value Stock:**

When par value stock is *issued*, the Capital Stock account is credits



with the par value of the shares issued, regardless of whether the issuance price is more or less than par. Assuming that 60,000 shares of L.E.3 par value stock have been authorized and that 20,000 of these authorized shares are issued at a price of L.E.3 each, Cash would be debited and Capital Stock would be credited for L.E. 60,000. When stock is sold for more than par value, the Capital Stock account is credited with the par value of the shares issued, and a separate account called "**Additional Paid-in Capital-in excess of PV**", is credited for excess of selling price over par. If, for example, our 20,000 shares were issued at a price of L.E. 7 per share, the entry would be:

	Dr.	Cr.
Cash.....	140,000	
Capital Stock .....		60,000
Additional Paid-in Capital.....		80,000

(Issued 20,000 shares of L.E. 3 par value stock at a price L.E. 7 a share).

The additional paid-in capital does not represent a profit to the corporation. It is part of the invested capital and it will be added to the capital stock in the balance sheet to show the total paid-in capital. The stockholders' equity section of the balance sheet is illustrated below.

**Stockholders' equity:**

Capital stock, L.E.3 par value, authorized 60,000 shares, issued and outstanding 20,000 shares	L.E. 60,000
Additional paid-in capital.....	<u>80,000</u>
<b>Total stockholders' equity .....</b>	<b>140,000</b>

**No-Par Stock:** Some corporations issue stock without designating a par or stated value. When this "no-par" stock is issued, the entire issue price is credited to the Capital Stock account and is viewed as legal capital not subject to withdrawal.

**Common Stocks and Preferred Stocks**

The account title **capital stock** is widely used when a corporation has issued only *one type* of stock. In order to appeal to as many investors as possible, however, many corporations issue several types (or classes) of capital stock, each providing investors with different rights and opportunities.

The "basic" type of capital stock issued by every corporation often is called **common stock**. Common stock possesses the traditional rights of ownership voting rights, participation in dividends, and a residual claim to assets in the event of liquidation. When any of these rights is modified the term

**preferred stock** is used to describe the resulting type of capital stock. A few corporations issue two or more classes of preferred stock, with each class having distinctive features, designed to appeal to a particular type of investor. In summary, we may say that every corporation has common stock, and that some corporations also have one or more types of preferred stock.

The following stockholders' equity section illustrates the balance sheet presentation for a corporation having both **preferred and common stock**:

### Stockholders' equity:

- 6% cumulative preferred stock, L.E. 100 par value,  
authorized 90,000 shares, issued 50,000 shares  
..... L.E. 5,000,000
- Common stock, L.E. 4 par value, authorized 2 million  
shares, issued 1 million shares. 4,000,000

### Additional paid-in capital:

Preferred stock	xxxxxxx
Common stock	<u>xxxxxxx</u>
Total stockholders' equity .....	<u>L.E. 9,000,000</u>

Notice that the par value and additional paid-in capital (if it existed) are shown separately for each type of stock. This implies that separate capital stock accounts and additional

paid-in capital accounts are used in recording the issuance of each type of stock.

### **Characteristics of Preferred Stock:**

The characteristics of preferred stocks vary from one issue to the another. The term *preferred* stems from the fact that these stocks almost have "preference" or priority over the common stock in receiving dividends and in the event of liquidation.

Among the features usually associated with issue of preferred stock are the following:

- 1) Preferences to dividends
- 2) Cumulative dividend rights
- 3) Preferences as to assets in event of the liquidation of the company
- 4) Callable at the option of the corporation
- 5) Convertible Preferred Stock

Preferred stocks vary widely with respect to the special rights and privileges granted. Careful study of the terms of the individual preferred stock contract is a necessary step in the evaluation of any preferred stock.

**1. Preferences to dividends:** Stock preferred as to dividends is entitled to receive each year a dividend of



specified amount before any **dividend** paid on the common stock. The dividend is usually stated as **Egyptian pounds amount** per share. Some preferred stocks state the dividend preference as a **percentage of par value**. *For* example, a 7% preferred stock with a par value of L.E. 100 per share would mean that L.E. 7 must be paid yearly on each share of preferred stock before any dividends are paid on the common stocks.

**2. Cumulative dividend rights:** The dividend preference carried by most preferred stock in a cumulative one. If all or any part of the regular dividend on preferred stock is due, but not paid yet in a given year, the amount of these dividend is said to be in arrears and must be paid in a subsequent year before any dividend can be paid on the common stock.

For a **noncumulative** preferred stock, any unpaid or omitted dividend is lost forever. Because of this factor, investors view the noncumulative feature as an unfavorable element, and very few noncumulative preferred stocks are issued.

**3. Preferences as to assets:** Most preferred stocks carry a preference as to assets in the event of liquidation of the corporation. If the business is terminated, the preferred stock is entitled to payment in full of its par value or a higher stated



liquidation value before any payment is made to the common stock. This priority also includes any dividends in arrears.

**4. Callable at the option of the corporation:** Most preferred stocks include a **call provision**. This provision grants the issuing corporation the right to repurchase the stock from the stockholders at a stipulated **call price**. The call price is usually slightly higher than the par value of the stock. For example, L.E. 100 par value preferred stock may be callable at L.E. 110 or L.E. 115 per share. In addition to paying the call price, a corporation that redeems its preferred stock must pay any dividends in arrears. A call provision gives a corporation flexibility in adjusting its financial structure.

**5. Convertible Preferred Stock:** In order to add to the attractiveness of preferred stock as an investment, corporations sometimes offer a **conversion privilege** which entitles the preferred stockholders to exchange their shares for common stock in a stipulated ratio. If the corporation prospers its common stock will probably rise in market value; and dividends on the common stock will probably rise in market value, and dividends on the common stock will probably increase.

## Market Price of Preferred Stock

Investors buy preferred stocks primarily to receive the dividends that

these shares pay. Thus, the dividend rate is one important factor in determining the market price of a preferred stock.

But what happens to the market price of an 6% preferred stock, originally issued at a par value of L.E. 100, if government policies and other factors cause long-term interest rates to rise to, say, 12% or 15%? If investments offering a return of 15% are readily available, investors will no longer pay L.E. 100 for a share of preferred stock, which provides a dividend of only L.E. 6 per year. Thus, the market price of the preferred stock will fall to about half of its original issue price, or about L.E. 50 per share. At this market price, the stock offers a 15% return (called the **dividend yield**) to an investor purchasing the stock (L.E. 6 per year - L.E.50 = 15%). However, if the prevailing long-term interest rates decline to the 6% range, the market price of this 6% preferred stock should rise quickly to approximately par value. In conclusion, the market price of preferred stock **varies** inversely with **interest rates**. As interest rates rise, preferred stock prices decline as interest rates fall, preferred stock prices rise.

## **Market Price of Common Stock**

Interest rates also have a significant effect upon the market prices of common stocks. However, common stock dividends are not fixed in amount. If the company prospers, these dividends are likely to increase- perhaps every year. Therefore, **investors' expectations** as to the profitability of **future operations** greatly affect the market value of common shares. In addition, many large corporations grow by acquiring small companies with excellent future prospects. This generally is accomplished by offering to buy all ' or most ' of the smaller company's common stock at a price that will induce the existing stockholders to sell. As preferred stockholders usually have no voting rights, an investor seeking control of a business entity need not acquire these shares.

### **Issuing Capital Stock:**

When a large amount of stock is to be issued, most corporations use the services of an investment-banking firm, frequently referred to as underwriter. The **underwriter** guarantees the issuing corporation a specific price for the stock and makes a profit by selling the shares to the **investing** public at a slightly higher price. The corporation records the issuance of the stock at the net amount received from the underwriter. The use of an underwriter assures the corporation that the

entire stock issue will be sold without delay and that the entire amount of fund- to be raised will be available on a specific date.

### **Issuing Stock with Assets Other Than Cash:**

Corporations generally sell their capital stock for cash and use the cash to buy the various types of assets needed in the business. Sometimes, a corporation may issue shares of its capital stock in a direct exchange for land, buildings, or other assets. Stock may also be issued in payment for services rendered by attorneys, accountants, and promoters in the formation of the corporation.

When a corporation issues capital stock in exchange for services or for assets other than cash, the transaction should be recorded at the current **market value** of the goods or services received. For some types of assets such as land or buildings, the services of a firm of professional appraisers may be useful in establishing current market value. Often, the best evidence as to the market value of these goods or services is the market value of the shares issued in exchange. For example, assume that a company issues 10,000 shares of its L.E.1 par value common stock in exchange for land. Competent appraisers may have more than one opinion as to the market value of the land. But let us assume that the company's stock is currently



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selling on a stock exchange for L.E. 70 per share. It is logical to say that the cost of the land to the company L.E. 700,000, the market value of the shares issued in exchange.

Once the valuation has been decided, the entry to record the issuance of the stock in exchange for the land is as follows:

	Dr.	Cr.
Land.....	700,000	
Common Stock.. ..		20,000
Additional Paid-in Capital: Common Stock..		680,000

((To record the issuance of 10,000 shares of L.E. 1 par value common stock in exchange for land. Current market value of stock (L.E. 70 per share) used as basis for valuing the land)).

### Subscriptions to Capital Stock: Installment Payment System

Small, newly formed corporations sometimes offer investors an opportunity to **subscribe** to shares of the company's capital stock. Under a subscription plan, the investors agree to purchase specified numbers of shares at a stated price **at a future date**, often by making a series of installment payments. The stock is issued after the entire subscription price has been collected.

In summary, selling stock through subscriptions is similar to selling merchandise on a "**layaway**" plan. One reason for this procedure is to attract small investors. Another



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*Corporations*

reason is to appeal to investors who prefer not to invest cash until the corporation is ready to start business operations.

When stock is subscribed, the company debits Stock Subscription- Receivable for the subscription price, credits Capital Stock Subscribed for the par value of the subscribed shares, and credits Additional Paid-in Capital for any excess of the subscription price over par value. (These account titles are modified if the subscribed shares are designated as common stock or preferred stock.) Later, as installments are collected, the entry is a debit to Cash and a credit to Stock Subscriptions Receivable. When the entire subscription price has been collected, the stock certificates are issued. The issuance of the stock is recorded by debiting Capital Stock Subscribed and crediting Capital Stock. The following illustration demonstrates the accounting procedures for stock subscriptions.

In this example, 20,000 shares of L.E.3 par value common stock are subscribed at a price of L.E.12. Subscriptions for 11,000 of these shares are then collected in full. A partial payment is received on the other 9,000 shares.

	Dr.	Cr.
Stock Subscriptions Receivable...	240,000	
Common Stock <i>Subscribed</i> .....		60,000

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Additional Paid-in Capital: Common Stock..... 180,000

(Received subscriptions for 20,000 shares of L.E.3 par value stock at price of L.E.12 a share).

When the subscriptions for 11,000 shares are collected in full, certificates for 6,000 shares will be issued. The following entries are made:

	Dr.	Cr.
Cash.....	132,000	
Stock Subscriptions Receivable.....		132,000
(Collected subscriptions in full for 11,000 shares at L.E.12 each).		
Capital Stock Subscribed .....	33,000	
Common Stock .....		33,000

(Issued certificates for 11,000 fully paid L.E.3 par value shares).

The subscriber to the remaining 9,000 shares paid only half of the amount of the subscription but promised to pay the remainder within a month. Stock certificates will not be issued until the subscription is collected in full, but the partial collection is recorded by the following entry:

	Dr.	Cr.
Cash.....	54,000	
Stock Subscriptions Receivable. ..		54,000
(Collected partial payment on subscription for 9,000 shares).		

From the corporations point of view, Stock Subscriptions Receivable a current asset, which ordinarily will be collected

within a short time. If financial statements are prepared between the date of obtaining subscriptions and the date of issuing the stock, the Capital Stock Subscribed account is regarded as legal capital and will appear in the stockholders' equity section of the balance sheet.

### **Stock Transfer Agent and Stock Registrar:**

Large, publicly owned corporations use an independent stock transfer agent and a stock registrar to maintain their stockholder records and to establish strong internal control over the issuance of stock certificates. These transfer agents and registrars usually are large banks or trust companies. When stock certificates are to be transferred from one owner to another, the old certificates are sent to the transfer agent, who cancels them, makes the necessary entries in the stockholders subsidiary ledger, and prepares a new certificate for the new owner of the shares. This new certificate then must be registered with the stock registrar before it represents valid and transferable ownership of stock in the corporation.

Small, closely held corporations generally do not use the services of independent registrars and transfer agents. In these companies, a corporate officer usually maintains the stockholder records. To prevent the accidental or fraudulent

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issuance of an excessive number of stock certificates, even a small corporation should require that each certificate be signed by at least two designated corporate officers.

### Book Value per Share of Common Stock

Since the number of shares determines the equity of each stockholder in a corporation he or she owns an accounting measurement of interest to many stockholders is the **book value per share** of common stock. Book value per share is equal to the **net assets** represented by one share of stock. The term **net assets** means total assets minus total liabilities; in other words, net assets are equal to total stockholders' equity. Thus, in a corporation, which has issued common stock only, the book value per share is computed by dividing total stockholders' equity by the number of shares outstanding.

*To illustrate*, assume that a corporation has 5,000 shares of capital stock outstanding L.E.3 par value share, so the stockholders' equity section of the balance sheet is as follows:

Capital stock, L.E.3 par value (5,000 shares outstanding)	L.E. 15,000
Additional paid-in capital .....	30,000
Retained earnings .....	65,000
<b>Total stockholders' equity .....</b>	<b><u>L.E. 110,000</u></b>



The book value per share is L.E. 22; it is computed by dividing the stockholders' equity of L.E. 110,000 by the 5,000 shares of outstanding stock. In computing book value, we are **not** concerned with the number of **authorized** shares but merely with the **outstanding** shares, because the total of the outstanding shares represents **100%** of the stockholders' equity.

### **The Book Value: when a Company has both Preferred and Common Stock**

Book value is usually computed **only** for common stock. If a company has both preferred and common stock outstanding, the computation of book value per share of common stock requires two steps. **First**, the redemption value or **call price** of the **entire preferred stock** issue and any **dividends arrears** are deducted from total stockholders' equity. **Second**, the remaining amount of stockholders' equity is divided by the number of common shares outstanding to determine book value per common share. This procedure reflects the fact that the common stockholders are the residual owners of the corporate entity.

*To illustrate*, assume that the stockholders' equity of Cairo Corporation at December 31, 2001 is as follows:

9% preferred stock L.E. 90 par callable at L.E. 100 .. L.E. 900,000



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Common stock, L.E. 15 stated value; authorized 100,000 shares.	
issued and outstanding 40,000 shares .....	600,000
Additional paid-in capital: common stock.....	480,000
Retained earnings.....	<u>160,000</u>
<b>Total stockholders' equity .....</b>	<b>L.E. 2,140,000</b>

Because of a weak cash position, Cairo Corporation has paid no dividend during year 2001. As of December 31, dividends in arrears on the cumulative preferred stock total L.E. 90,000.

All the equity belongs to the common stockholders, **except** the L.E. 1, 000,000 call price (L.E. 100 x 10,000 shares) applicable to the preferred stock **and** the L.E. 90,000 of dividends in arrears on preferred stock. The calculation of book value per share of common stock is shown below:

<b>Total stockholders' equity .....</b>	<b>L.E. 2,140,000</b>
<b>Less: Equity of preferred stockholders:</b>	
Call price of preferred stock .....	L.E. 1,000,000
Dividends in arrears.....	<u>90,000</u> <u>1,090,000</u>
Equity of common stockholders .....	1,050,000
Number of common shares outstanding . ...	40,000
<b>Book value per share of common stock:</b>	
(L.E. 1, 050,000 <u>divided by</u> 40,000 shares)	<u>L.E. 26.25</u>

## **The Relationship between Book Value and Market Price:**

To some extent, book value is used in evaluating the reasonableness of the market price of a stock. However, it must be used with great caution; the fact that a stock is selling at less than book value does not necessarily indicate a bargain. The book value of a stock is a historical concept, representing the amounts invested by stockholders **plus** the amounts earned and retained by the corporation.

If a stock is selling at a price well **above** book value, investors believe that management has created a business worth substantially more than the historical cost of the resources entrusted to its care. This is a sign of a successful corporation. If the **excess** of market price over book value becomes very great, however, investors should consider whether the company's prospects really justify a market price so much above the underlying book value of the company's resources. On the other hand, if the market price of a stock is **less than** book value, investors believe that the company's resources are worth less than their cost while under the control of current management. Thus, the relationship between book value and market price is one measure of investor's confidence in a company's management.

**KEY TERMS INTRODUCED IN CHAPTER (3)**

<i>Additional paid-in capital:</i>	علاوة الإصدار
<i>Board of directors:</i>	مجلس الإدارة
<i>Book value per share</i>	القيمة الدفترية لكل سهم
<i>Call price:</i>	سعر الاستدعاء
<i>Capital stock:</i>	رأس مال الأسهم
<i>Common stock:</i>	الأسهم العادية
<i>Deficit:</i>	العجز
<i>Dividend:</i>	التوزيعات
<i>Legal capital:</i>	رأس المال القانوني
<i>Organization costs:</i>	تكلفة التأسيس
<i>Paid-in capital:</i>	المبالغ المدفوعة بالزيادة في رأس المال للأسهم
<i>Par value or stated value:</i>	القيمة الاسمية
<i>Preferred stock:</i>	الأسهم الممتازة
<i>Retained earnings:</i>	العائد المحتجز
<i>Stock certificate:</i>	شهادة الأسهم
<i>Stock registrar:</i>	تسجيل الأسهم
<i>Stock transfer agent:</i>	وكالة تحويل الأسهم
<i>Stockholder:</i>	حملة الأسهم

**DEMONSTRATED PROBLEM FOR REVIEW**

At the end of year 2002, the stockholders' equity section of Ain Shams Corporation's balance sheet was as follows:

**Stockholders' equity:**

L.E. 8 preferred stock, L.E. 100 par value, callable at L.E. 107, 500,000

Shares authorized ..... L.E. 13,000,000

Common stock L.E. 4 par value, 5,000,000 shares authorized:

Issued..... L.E. 12,000,000

Subscribed..... 240,000 12,240,000

**Additional paid-in capital:**

Preferred..... L.E. 110,000

Common (including subscribed shares) 20,000,000 20,110,000

Retained earnings 3,450,000

**Total stockholders' equity .....** L.E. 48,800,000

Assets of the corporation include **subscription receivable**, L.E. 9,200,000.

On the basis of this information, *answer the following questions* and show any necessary supporting computations.

- How many shares of preferred stock have been issued?
- What is the total annual dividend requirement on the outstanding preferred stock?
- How many shares of common stock have been issued or subscribed?
- What was the average price per share received by the corporation for its common stock, including shares subscribed?

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- e) What is the average amount per share that subscribers to common stock have yet to pay on their subscriptions?
- f) What is the total amount of legal capital, including shares subscribed?
- g) What is the total paid-in capital, including shares subscribed?
- h) What is the book value per share of common stock? (Assume no dividends arrears).

**THE PROBLEM SOLUTION:**

- a) 130,000 shares (L.E.13, 000,000 total-par value, divided by L.E.100 par value per share)
- b) L.E.1, 040,000 (130,000 shares x L.E.8 per share)
- c) 3,060,000 shares (L.E.12, 240,000 total par value, divided by L.E.4 par value per share)

d) Par value of common shares issued and subscribed L.E. 12, 240,000

Additional paid-in capital on common shares.....  
20,000,000

Total issue price of common shares

(Including subscribed)..... L.E.32,240,000

Shares issued and subscribed (part c)..... 3,060,000

Average issue price per share (L.E.32, 240,000

divided by 3,060,000 shares)..... L.E. 10.53

e) Subscriptions receivable ..... L.E. 9,200,000.



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Shares subscribed (L.E. 240,000 total par value, divided by  
L.E.4 par value per share) ..... 60,000

Average amount due per share (L.E. 9,200,000 divided by  
60,000 shares).....

f) L.E.25, 240,000 (L.E.13, 000,000 preferred, L.E.  
12,240,000 common)

g) L.E.45, 350,000 (L.E.25, 240,000 legal capital, plus L.E.  
20,110,000 additional paid-in capital)

h) Total stockholders equity..... L.E. 48,800,000

Less: Claims of preferred stock

s' liability for debts of the business.

- Transferability of ownership interest.
- Continuity of existence.
- Income tax.

## EXERCISES

**E3-1:** Listed below are nine technical accounting terms introduced or emphasized in this chapter:

<b>Retained earnings</b>	<b>Preferred stock</b>	<b>Par value</b>
<b>Deficit</b>	<b>Common stock</b>	<b>Book value</b>
<b>Dividend in arrears</b>	<b>Paid-in capital</b>	<b>Market value</b>

Each of the following statements may (or may not) describe one of these technical terms. For each statement, indicate the

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term described, or answer "**None**" if the statement does not correctly describe any of the terms.

- a) That portion of stockholders' equity arising from the issuance of capital stock.
- b) The type of capital stock most likely to increase in value as a corporation becomes increasingly profitable.
- c) The net assets represented by one share of common stock.
- d) A distribution of cash by a corporation to its owners.
- e) The type of capital stock for which the dividend usually is fixed in amount.
- f) Cash provided by profitable operations, that is available for distribution to stockholders as dividends.
- g) The per-share value of common stock that reflects investors' expectations of future profitability.
- h) A dividend paid to common a stockholder that is smaller than the dividend paid in the prior year.

**E3-2:** Cairo, Inc., began operations in 2001. In that year, the corporation earned net income of L.E. 195,000 and paid dividends of L.E. 2.25 per share on its 40,000 outstanding shares of capital stock. In 2002, the corporation incurred a net loss of L.E. 127,000 and paid no dividends.

**Instructions:**

- a) Prepare the journal entry to close the Income Summary account at December 31, 2002 (the year of the L.E. 127,000 net loss).
- b) Compute the amount of retained earnings or deficit which will appear in the company's balance sheet at December 31, 2002.

**E3-3:** Nasser City Corporation has 60,000 shares outstanding of L.E.2 par value common stock, which were issued for L.E.22 per share. The net income in the first year of operations was L.E. 235,000. On December 31, the board of directors declared a dividend of L.E. 1.50 per share, payable on January 31 of the following year.

**Instructions:**

- a) Prepare the journal entries at December 31 of the first year (1) to close the Income Summary account and (2) to record declaration of the dividend.
- b) Prepare the journal entry to record payment of the dividend on January 31 the second year.

c) Compute the amount of retained earnings reported in Nasser City balance sheet at December 31, the end of the first year of operations.

d) Assume that the board of directors of Nasser City did not meet on December 31 as above, but waited until January 15 of the second year because the chairman on vacation. On January-15, they declared the dividend of L.E. 1.50 per share payable on February 15. Compute the amount of retained earnings that would have been reported in Nasser City balance sheet at December 31, the end of the first year of operations in this situation.

**E 3-4:** ABC Inc. was formed, the company was authorized to issue 5,000 shares of L.E. 100 par value, 8% cumulative preferred stock, and 100,000 shares of L.E. 2 stated value common stock. The preferred stock is callable at L.E 106. Half of the preferred stock was issued at a price of L.E 103 per share, and 70,000 shares of the common stock were sold for L.E 13 per share. At the end of the current year, ABC Inc. has retained earnings of L.E. 297,000.

**Instructions:**

**Prepare** the stockholders' equity section of the company's balance sheet at the end of the current year.

**E3-5:** The stockholders' equity section from the December 31, 2002, balance sheet of **Abassia Corporation of Furniture** appears below:

**Stockholders' equity:**

Preferred stock, 8% cumulative, L.E 40 par, 50,000 shares authorized and issued.....	L.E 2,000,000
Preferred stock, 12% noncumulative L.E 100 par, 6,000 shares authorized and issued.....	600,000
Common stock L.E 5 par 700,000 shares authorized and issued. ....	3,500,000
Additional paid-in capital: common.....	2,400,000
Retained earnings .....	880,000
<b>Total stockholders equity'</b> .....	<b>L.E 9,380,000</b>

**Instructions:**

Assume that all the stock was issued on January 1, 2000, and that no dividend were paid during the first two years of operations. During 2002 **Abassia Corporation** declared and paid total cash dividends of L.E 816,000.

- Compute the amount of cash dividends paid during 2002 to each of the three classes of stock.
- Compute the dividends paid per share during 2002 for each of the three classes of stock.
- Abassia Corporation** generated a net loss of L.E 180,000 in 2000 and earned net income of L.E 765,000 in 2001.



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**Compute the amount of net income (or net loss) generated by Abassia Corporation 2002.**

**E3-6:** Royal Company has outstanding two classes of L.E.100 par value stock: 7,000 shares of 9% cumulative preferred and 35,000 shares of common. The company had a L.E.40, 000 deficit at the beginning of the current year, and preferred dividends had not been paid for two years. During the current year, the company earned L.E. 400,000.

**Instructions:**

What will be the balance in **retained earnings** at the end of the current year, if the company pays dividends of L.E.2 per share on common Stock?

**E3-7:** The year-end balance sheet of 10<sup>th</sup> of **Ramadan Corporation** includes the following stockers' equity section:

**Stockholders' equity:**

L.E. 8.25 cumulative preferred stock, L.E. 100 par value, callable at L.E.105 .....	L.E.12, 000,000
Common stock, L.E 5 par value, 5,000,000 shares authorized .....	20,000,000
<b>Additional paid-in capital:</b>	
Preferred.....	240,000
Common.....	31,200,000

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Retained earnings.....	<u>57,160,000</u>
Total stockholders' equity.....	<u>L.E. 120,600,000</u>

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**Instructions:**

From this information, compute answers to the following questions:

- How many shares of preferred stock have been issued?
- What is the total amount of the annual dividends paid to preferred stockholders?
- What was the average issuance price per share of common stock?
- What is the amount of legal capital and the amount of total paid-in capital?
- What is the book value per share of common stock?

**E3-8:** GIZA Manufacturing issued 45,000 shares of common stock in exchange for land with a fair market value of L.E.870,000.

**Instructions:**

Prepare the journal entry to record the transaction under each of the following independent assumptions:

- The stock has a L.E.2 par value.
- The stock has a L.E.10 par value.
- The stock has no par value or stated value.

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**E3- 9:** To raise capital for a new Football field, Al-Ahle Club offered shares of its common stock to club members on a subscription plan.

**Requirements:**

Prepare journal entries in the club's accounting records to record the following transactions:

**Sept. 14** Members subscribed to 30,000 shares of L.E.2 par value common stocks at a subscription price of L.E. 25 per share.

**Dec. 20** Collected L.E.300,000 cash in full payment of 12,000 of the subscribe shares. Issued stock certificates for these shares.

**E3-10:** Presented below is the information necessary to compute the net assets (stockholders' equity) and book value per share of common stock for AL-Road Advertising, Inc.:

9% cumulative preferred stock, L.E. 100 par (callable at	
L.E. 110 .....	L.E.400, 000
Common stock, L.E. 4 par, authorized 300,000 shares ...	550,000
Additional paid-in capital.....	780,200
Deficit.....	140,200
Dividends in arrears on preferred stock, 1 full year .....	27,000

**Instructions:**

- a) Compute the amount of net assets (stockholders' equity)
- b) Compute the book value per share of common stock.

**PROBLEMS**

**P3 -1:** International Business Machines Corporation (IBM), the world's largest manufacturer of computers, has had a long track record of growing sales and earnings. In December 2001, however, IBM announced projected revenue growth of only 6% for 2002, below the computer industry average. In addition, heavy competition would enable IBM to hold gross profit margins at just 51% to 53%, several points below what analysis had expected. According to company management, this lower-than-expected growth projection will not affect the company's ability or commitment to continue paying dividends at the current rate.

**Instructions:**

What would you expect the immediate effect of this announcement to be upon the following values of IBM's common stock? Explain.

- a) Par value
- b) Market value
- c) Book value.

**P3-2:** TWA a successful small business and decided to organize a new corporation and continue in the same business but in a big scale. In January, TWA organized the new corporation and authorized to issue 600,000 shares of L.E. 4 par value common stock. During January TWA Inc., completed the following transactions:

**Jan. 9** Issued 9,000 shares of common stock to various investors for cash at L.E. 22 per share.

**Jan. 12** Issued 28,000 shares of common stock to TWA in exchange for assets with a current market value as follows:

Inventory.....	L.E. 196,000
Land.....	321,000
Equipment.....	213,000
Building.....	409,000

**Jan. 14** Received an invoice from an attorney for L.E. 9,950 for services relating to the formation of TWA Inc.,. The invoice will be paid in 30 days.

**Jan. 15** Received subscriptions for 9,000 shares of common stock at L.E. 33.2 per share; 2,000 of the shares were subscribed by TWA and other investors subscribed 5,000.

**Jan. 31** Collected from TWA the full amount of its other subscription to 2,000 shares of common stock and issued a



stock certificate for these shares. (No collection has yet been made from the subscribers to the other 5,000 shares.)

The corporation will begin operations in February; no revenue was earned and no expenses were incurred during January. No depreciation of plant assets and no amortization of organization cost will be recognized until February, when operations get under way.

### **Instructions:**

- Prepare journal entries to record the transactions for January in the accounting records for TWA, Inc.
- Prepare a classified balance sheet for the corporation at January 31.

**P3-3:** The year-end balance sheet of Alexandria Inc., includes the following stockholders' equity section (with certain details omitted):

#### **Stockholders' equity:**

L.E.8 cumulative preferred stock, L.E.100 par value, callable at

L.E.103, 200,000 shares authorized..... L.E. 6,000,000

Common stock, L.E.2 par value, 5,000,000 shares authorized:

Issued..... L.E. 3,600,000

Subscribed..... 1,400,000 5,000,000

#### **Additional paid-in capital:**

Preferred..... L.E. 240,000

Common (including subscribed shares) 25,000,000 25,240,000

Retained earnings..... 3,690,000

Total stockholders equity ..... L.E. 39,930,000

Assets of the corporation include subscriptions receivable,  
L.E. 5,600,000.

**Instructions:**

On the basis of this information, answer the following questions and show any necessary supporting computations.

- a) How many shares of preferred stock have been issued?
- b) What is the total annual dividend requirement on the outstanding preferred stock?
- c) How many shares of common stock have been issued or subscribed?
- d) What was the average price per share received by the corporation for its common stock, including shares subscribed?
- e) What is the average amount per share that subscribers to common stock have yet to pay on their subscriptions?
- f) What is the total amount of legal capital, including shares subscribed?
- g) What is the total paid-in capital, including shares subscribed?
- h) What is the book value per share of common stock?  
(Assume no dividends in arrears.)

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i) Total dividends of L.E.780,000 were declared on the preferred and common stock during the year, and the balance of retained earnings at the beginning of the year was L.E.2,302,000. What was the amount of net income for the year?

**P3-4:** Memo Maher organized MM Sport Company in January 1999. the corporation immediately issued at L.E.9 per share one-half of its 300,000 authorize shares of L.E.3 par common stock. On January 2, 2000, the corporation sold at par the entire 5,000 authorized shares of 9%, L.E.100 par value, cumulative preferred stock. On January 2, 2001, the company again needed money and issued 6,000 shares of an authorized 10,000 shares of L.E.10, no-par, cumulative preferred stock for a total of L.E. 612,000. The company suffered losses in its first two years reporting a deficit of L.E.180 000 at the end of 2000. During 2001 and 2002 combined, the company earned a total of L.E.990, 000. Dividends of L.E. .50 per share were paid on common stock in 2001 and L.E.1.70 per share in 2002.

**Instructions:**

Prepare the stockholders' equity section of the balance sheet at December 31, 2002. **Include** a supporting schedule showing

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your computation of retained earnings or deficit at the balance sheet date.

**P3- 5:** Shown below are selected transactions of Auto Car Inc., for the year ended December 31,2002:

**Jan. 19:** Issued capital stock to Hessian in exchange for land. Two firms hired to appraise the land have different opinions as to the fair market value of the real estate. Hessian, however, agrees to accept 30,000 shares of L.E.2 par value capital stock as a fair exchange. Auto Car Inc., stock is widely traded and is quoted at L.E.19 per share on a national stock exchange on this date.

**June 10:** At their June meeting, the board of directors declared a dividend of L.E. .9 per share payable on July 15, to owners of the corporation's 300,000 outstanding shares of capital stock.

**July 15:** Paid the dividend declared on June 10.

**Dec. 10:** At their December meeting, the board of directors declared a dividend of L.E. 1.1 per share, payable on January 15 of the following year. No capital stock has been issued since the January 19 transaction.

**Dec. 31:** Recorded income tax expense for the three months ended December 31, 2002, L.E. 22,900. These taxes will be

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paid on January 15, 2003. (Income taxes for the first nine months of 2002 have already been recorded and paid.

**Dec. 31:** Closed the Income Summary account at the end of a profitable period Net income, L.E. 425,000.

**Instructions:**

- a) Prepare journal entries to record the above transactions.
- b) Assume the balance sheet of Auto Car Inc., at December 31, 2001, reported retained earnings of L.E. 3,255,000. Compute the amount of retained earnings to be reported in the corporation's balance sheet at December 31, 2002. Show computation.

**P3-6:** Early in 1998, Nasser Press was organized with authorization to issue 100,000 shares of L.E. 100 par value preferred stock and 500,000 shares of L.E. 1 par value common stock. Ten thousand shares of the preferred stock were issued at par, and 170,000 shares of common stock were sold for L.E. 15 per share. The preferred stock pays an 8% cumulative dividend and is callable at L.E. 105. During the first four years of operations (1998 through 2001), the corporation earned a total of L.E. 1,025,000 and paid dividends of L.E. 75 per share each year on the common stock. In 2002, however, the corporation reported a net loss L.E. 340,000 and paid no dividends.



## Chapter One

**Instructions:**

a) Prepare the stockholders' equity section of the balance sheet at December 31, 2002. Include a supporting schedule showing your computation of the amount of retained earnings or deficit.

b) Draft a footnote to accompany the financial statements disclosing

**P3-7:** The year-end balance sheet of Data Show Products includes the following stockholders' equity section (with certain details omitted):

Stockholders' equity:

8% cumulative preferred stock, L.E.100 par value, callable at L.E.105, 100,000 shares authorized .....	L.E.
2,400,000	

Common stock L.E.2 par value, 900,000 shares authorized	
.900,000	

Additional paid-in capital: common stock.....	
8,325,000	


Retained earnings.....	
<u>2,595,000</u>	

Total stockholders' equity.....	
<u>L.E.14,220,000</u>	

**Instructions:**

From this information, compute answers to the following questions:

- a) How many shares of preferred stock have been issued?
- b) What is the total amount of the annual dividends paid to preferred stockholders?
- c) How many shares of common stock are outstanding?
- d) What was the average issuance price per share of common stock?
- e) What is the amount of legal capital?
- f) What is the total amount of paid-in capital?

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## CHAPTER TWO

# CASH FLOW STATEMENT

**After studying this chapter, you will be able to:**

- Identify the elements and the preparation of a statement of changes in financial position.
- How to tie together much of the financial activity of an organization into a single statement.
- Way a firm usually prepares four statements at the end of its accounting period.
- Identify the schedule of changes in working capital.

Earlier in the text we stated that a firm usually prepares four statements at the end of its accounting period an income statement, a statement of retained earnings, a balance sheet, and a statement of changes in financial position. We have already discussed the preparation and uses of the first three statements. The purpose of this chapter is to discuss the preparation and uses of the fourth—the statement of changes in financial position. We shall see that this statement is derived from analyzing the other three statements, and thus serves to tie together much of the financial activity of an organization into a single statement.

A companion statement to the statement of changes in financial position is the schedule of changes in working capital, and this too will be discussed here.

The income statement, statement of retained earnings, and balance sheet often fail to answer essential questions, such as: Why does such a profitable firm pay such meager dividends? How much was spent for new plant and equipment during the year, and where did the funds come from to purchase it?

Answers to these questions can be found in the statement of changes in financial position, which is one of the topics of this chapter.

## **THE CONCEPT OF FUNDS**

The term funds must be defined before changes in financial position can be measured. Funds are often defined as "working capital or cash". Both definitions are acceptable bases on which to prepare a statement of changes in financial position.

### **Funds Defined as Working Capital**

Funds have typically been defined as working capital. *Working capital* is equal to current assets minus current



liabilities. Using the working capital definition of funds, any transaction that increases or decreases working capital is included in the statement of changes in financial position. The borrowing of cash by the use of long-term bonds would be included because the transaction increases total current assets but does not affect current liabilities, thus increasing working capital. The purchase of a plant asset on a short-term credit basis would be included because it reduces working capital by increasing total current liabilities but does not affect current assets. Defining funds as working capital also permits exclusion of many routine transactions. Examples are collection of an account receivable or payment of an account payable. The first transaction merely substitutes one current asset (cash) for another (accounts receivable). The second transaction reduces a current asset (cash) and reduces a current liability (accounts payable). Both transactions change the composition of working capital, but not its amount.

### **Funds Defined as Cash**

Funds may also be defined as cash. When funds are defined as cash, any transaction that increases or decreases cash is included in the statement of changes in financial position. Many examples can be given, including transactions involving cash received from the collection of accounts

receivable and from the sale of plant assets, as well as cash payments to retire long-term or short-term debt. When the cash basis of funds is strictly applied, only transactions that affect cash are reported.

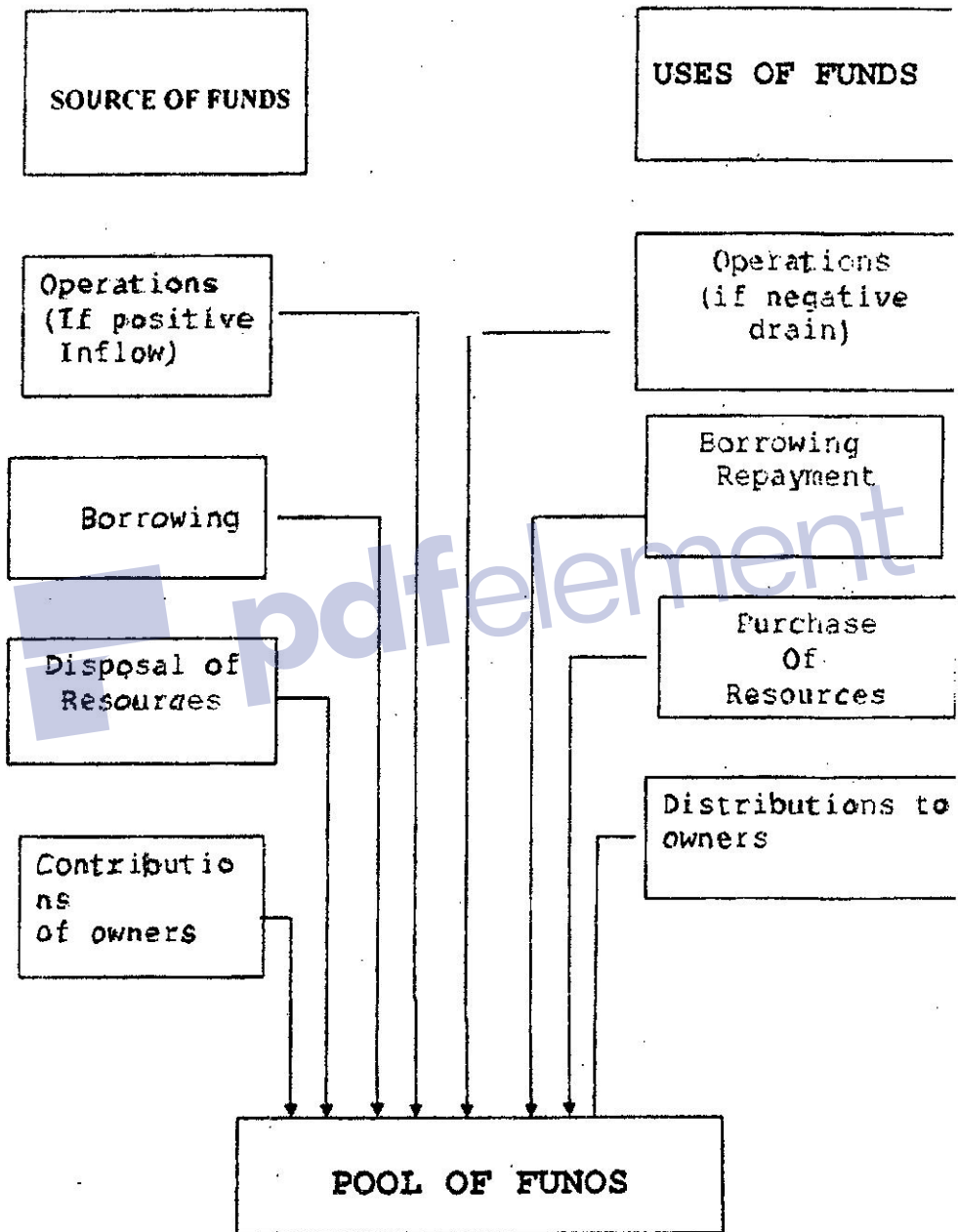
**Other significant financing and investing activities.**

Strict adherence to the cash or working capital concept of funds could lead to the omission of significant transactions from the statement of changes in financial position. For example, a firm might increase its assets by issuing common stock in exchange for land and buildings. Since this transaction did not change the amount of working capital (no current asset or liability was affected) nor did it change the amount of cash, it would not appear on the statement of changes if either of the above concepts of funds was strictly applied. But in developing the principles underlying the presentation of the statement of changes, **APB Opinion No. 19** requires a firm to report all significant financing and investing activities, regardless of whether cash or working capital is used to measure basic fund flows. This method of presentation is referred to as the all-financial resources concept. Because the above transaction is a significant investing and financing event, it would be reported on the statement of changes in financial position.

## Major Sources and Uses of Funds

No matter how the term fund is defined, there are some basic sources and uses of funds in a business. A *source of funds* is a transaction that brings cash or working capital into the business, while a *use of funds* is a transaction that removes cash or working capital from the business. The major source of funds in a firm is operations. Sales create inflows of funds, while expenses cause outflows. In general, then, net income produces a positive flow of funds, while a net loss drains funds out of a firm. The major sources and uses of funds are portrayed graphically in Illustration 11.1.

**Illustration 11.1: Sources and uses of funds**



companies have a positive funds flow from operations as shown below.

	Company A	Company B
Net income (loss).....	L.E.30,000	L.E.(6,000)
<u>+ Add depreciation expense</u>		
(Which did not require use of funds) .....	<u>15,000</u>	<u>15,000</u>
<b>Positive funds flow from operations</b>	<b><u>L.E.45,000</u></b>	
<b><u>L.E.9,000</u></b>		

Only if B's loss had exceeded L.E.15,000 would there have been a negative flow of funds from operations for the company.

There are other expenses and losses that are added back to net income because they do not reduce the amount of funds that flow into the company. These items include depletion expense, amortization of intangible assets such as patents and goodwill, amortization of discount on bonds payable, amortization of premiums on long-term bond investments, and losses from disposals of noncurrent assets. These addbacks are often called nonworking capital (nonfund) charges or expenses.



**To illustrate** why amortization of discount on bonds payable is added back to net income, consider the following journal entry that would be recorded to amortize that discount.

Interest Expense .....	800
Interest Payable .....	740
Discount on Bonds Payable .....	60

(To record interest expense and amortize bond discount).

The debit to interest expense reduces net income by L.E.800, but the effect on working capital or funds is only L.E.740, the amount credited to the current liability account, Interest Payable. Therefore, the deduction from net income for interest expense was L.E.60 larger than the actual effect on working capital. The L.E.60 is the amount of bond discount amortization that must be added back to net income.

To illustrate the addback of the losses from disposals of noncurrent assets, assume that Khater Company sold a piece of equipment for L.E.9,000. The equipment had cost L.E.15,000 and had accumulated depreciation of L.E.4,500. The journal entry to record the sale is:

*Cash Flow Statement*


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Cash .....	9,000
Accumulated Depreciation .....	4,500
Loss on Sale of Equipment .....	1,500
Equipment.....	15000

(To record disposal of equipment at a loss).

The only "**funds**" account in the above journal entry is Cash. The L.E.9,000 inflow from the sale of the equipment will be shown on the funds statement as a source of funds. The loss amount does not reduce working capital and is added back in converting net income to funds from operations.

There are also items called nonworking capital (nonfund) credits or revenues that must be deducted from net income in order to compute funds provided by operations. Such items include amortization of bond premiums, gains from disposals of noncurrent assets, income from investments carried under the equity method, and amortization of discounts on long-term bond investments. In regard to the latter, the journal entry to record interest earned on long-term bond investments purchased at a discount is as follows:

Cash (Interest Receivable)	1,170
Bond Investment .....	30
Interest Revenue	1,200

(To record interest earned on bond investment and amortize the bond discount).

The funds effect is the L.E.1,170 but L.E.1,200 was included in net income. So the L.E.30 investment discount needs to be deducted from net income to show the actual funds effect. The L.E.30 is a nonfund producing revenue item.

The next section of the chapter covers the various procedures used to prepare the statement of changes in financial position on a working capital basis. Then, the statement of changes in financial position focusing on cash flows is presented.

## **STATEMENT OF CHANGES IN FINANCIAL POSITION WORKING CAPITAL BASIS**

A statement of changes in financial position reports the flows of cash or working capital into and out of a business in a given time period. The statement will also show significant financing and investing activities that do not involve cash or working capital flows. The Accounting Principles Board decided that a statement of changes in financial position is to be provided for each period for which an income statement is

presented.' The financial statements and additional data for the Candy Company, Illustration 2, will be used to prepare the company's statement of changes in financial position on a working capital basis. To prepare the statement, the change in working capital is *first* determined, and then all of the noncurrent assets are analyzed for changes that affected working capital.

### **Determining the Change in Working Capital**

APB Opinion No. 19 states that a separate statement of changes in working capital should accompany the statement of changes in financial position. A statement of change in working capital lists all current assets and current liabilities, their beginning and ending balances and the changes in these balances summarized into a net change in working capital amount. Such a statement is presented in Illustration (2). Alternatively, a schedule of changes in working capital components that shows only the change

## Illustration (2)

CHADEY COMPANY		
Comparative Balance Sheets		
December 31 2002, and 2003		
	<u>December 31</u>	
	2002	2003
<b>Assets</b>		
Cash .....	L.E. 31,500	
15,000		
Accounts receivable.....	45,000	30,000
Inventories.....	39,000	45,000
Plant assets.....	105,000	74,000
Accumulated depreciation.....	<u>(15,000)</u>	<u>(7,500)</u>
<b>Total assets ..</b>	<b>L.E. 205,500</b>	<b><u>156,500</u></b>
<b>Liabilities and Stockholders' Equity</b>		
Accounts payable.....	L.E. 15,000	22,500
Accrued liabilities.....	3,000	- 0 -



*Cash Flow Statement*

Common stock— L.E.10 par.....	135,000	90,000
Retained earnings.....	<u>52,500</u>	<u>44,000</u>
Total liabilities and stockholders' equity	<u>L.E.205,500</u>	
	<u>156,500</u>	

(Continue) Illustration (2)

**CHADEY COMPANY****Income Statement**

For the Year Ended December 31, 2002

Sales .....	L.E. 210,000	
Cost of goods sold. ....	<u>150,000</u>	
Gross margin .....	60,000	
Operating expenses and taxes....	37,500	
Depreciation .....	<u>7,500</u>	<u>45,000</u>
Net income .....	L.E. <u>15,000</u>	

**Additional data:**

1. Plant assets purchased for cash during 2003, L.E. 31,000.
2. Common stock with a par value of L.E. 45,000 was issued at par for cash.

3. Cash dividends declared in 2003, L.E. 6,500.

in each working capital item may be presented immediately under the statement of changes in financial position, as in Illustration(3). This form will be used in the problems at the end of the chapter.

*In Illustration 3*, note that changes in current assets cause working capital to change in the same direction, while changes in current liabilities cause working capital to change in the opposite direction. Thus, both the L.E. 15,000 increase in accounts receivable and the L.E. 7,500 decrease in accounts payable increased working capital. The L.E. 6,000 decrease in inventory and the L.E. 3,000 increase in accrued liabilities decreased working capital. The schedule shows that Chadey's working capital increased L.E. 30,000 during the year. The L.E. 30,000 increase in working capital is what must be explained by analyzing the noncurrent accounts. ***The statement of changes in financial position reports the causes of the change in working capital.***

Illustration 3

Statement of changes in working capital

CHADEY COMPANY

## Cash Flow Statement

Statement of changes in working capital		
For the Year Ended December 31, 2004		
	December 31	
	Working Capital	
	2004	2003
Increase      Decrease		
<b><u>Current assets:</u></b>		
Cash	L.E. 31,500	L.E. 15,000
	L.E. 16,500	
Accounts receivable	45,000	30,000
	15,000	
Inventories	<u>39,000</u>	<u>45,000</u>
	L.E. 6,000	
<i>Total current assets:</i>	<u>115,500</u>	<u>90,000</u>
<b><u>Current Liabilities:</u></b>		
Accounts payable	L.E. 15,000	L.E. 22,500
	7,500	
Accrued liabilities	<u>3,000</u>	<u>- 0 -</u>
	3,000	
<i>Total current liabilities</i>	<u>18,000</u>	<u>22,500</u>
Working capital	L.E. 97,500	L.E. 67,500
	<u>30,000</u>	

***Increase in working capital*****L.E.****39,000   L.E. 39,000****Analyzing the Noncurrent Accounts**

At first, it may seem quite unusual to seek causes of the change in working capital by looking at the noncurrent (nonworking capital) accounts. But bear in mind that a transaction that is recorded solely in two working capital accounts can never increase or decrease working capital. Consider the effects upon working capital of collections of receivables, purchases of merchandise, and payments of accounts payable. These transactions change the composition of working capital, but not its amount. The noncurrent accounts must be analyzed for transactions affecting the amount of working capital. In this case, there are four noncurrent accounts to analyze: Retained Earnings, Plant Assets; Accumulated Depreciation, and Common Stock.

1. Because of the importance of working capital provided by operations, the analysis of the noncurrent accounts begins by reviewing the Retained Earnings account. Retained Earnings is the account to which net income or loss for the period was closed. The L.E. 8,500 increase in this account consists of L.E.

15,000 of net income less L.E. 6,500 of dividends. The net income amount can be found in the income statement. Both net income and dividends must be entered on the statement of changes in financial position in Illustration (3). The L.E. 6,500 of dividends reduced working capital when they were declared and credited to a current liability account, Dividends Payable. The declaration of dividends is a use of working capital, and is shown under financial resources applied. The L.E. 15,000 net income is used as the starting figure in determining working capital from operations. Net income of L.E. 15,000 is entered on the statement in the financial resources provided section under "Working capital from operations."

2. The plant assets account increased by L.E. 31,000 during the year. The additional data indicate that L.E. 31,000 of plant assets was purchased during the period.



## Chapter Two

## Illustration (4):

Statement of changes in financial position— working capital basis

CHADEY COMPANY	
Statement of Changes in Financial Position—Working Capital	
Basis For the Year Ended December 31, 2004	
<b><u>Financial resources provided:</u></b>	
By operations:	
Net income .....	
L.E. 15,000	
Add nonworking capital expenses:	
Depreciation.....	
<u>7,500</u>	
Working capital from operations ...	
L.E. 22,500	
Issuance of common stock .....	
45,000	
Total financial resources provided	
L.E. 67,500	
<b><u>Financial resources applied:</u></b>	
Purchase plant assets.....	L.E. 31,000

## Cash Flow Statement

Dividends.....	<u>6,500</u>
----------------	--------------

37,500

Total financial resources applied

L.E. 30,000

Increase in working capital .....

**Schedule of changes in working capital components:**

Increase (decrease) in current assets:

Cash .....	L.E.
------------	------

16,500

Accounts receivable .....

15,000

Inventories .....

(6,000)

L.E. 25,500

Increase (decrease) in current liabilities:

Accounts payable .....	L.E. (7,500)
------------------------	--------------

Accrued liabilities.....	<u>3,000</u>
--------------------------	--------------

(4,500)

Increase in working capital .....

L.E. 30,000

A purchase of plant assets is a use of funds and is entered under "*Financial resources applied.*"

3. The L.E. 7,500 increase in the accumulated depreciation account equals the amount of depreciation expense for the period. Because depreciation does not affect or use up working capital, it must be added back to net income to convert net income to working capital from operations. Working capital from operations is the amount of working capital generated by the regular operations of the business and is usually computed as net income adjusted for nonworking capital transactions.

Working capital from operations could be measured directly by deducting only those expenses that affect working capital from the amount of sales revenue. For the CHADEY Company, the computation would be: L.E. 210,000 — L.E. 150,000 — L.E. 37,500 = L.E. 22,500. But, in actual practice, the indirect or addback method is used almost exclusively. The indirect (or addback) method is a way of determining working capital from operations that starts with net income and adjusts for expenses and revenues that do not affect working capital. Two reasons for this preference are: (a) details of the income statement need not be repeated and (b) use of net income ties in directly to the income statement.

4. The L.E. 45,000 increase in common stock resulted from the issuance of stock at par, as disclosed in the additional data.

The L.E. 45,000 is entered as a source of working capital under "Financial resources provided."

The analysis of the noncurrent accounts is now complete. Note that the current accounts were not dealt with except to find the net change in working capital that is reported as the final item in the statement of changes in financial position.

The completed statement of changes in financial position and schedule of changes in working capital components are shown in Illustration (4). The headings "Sources of working capital" and "Uses of working capital" could have been used instead of the all-inclusive headings of *Financial resources* provided and *Financial resources applied*. The latter headings seem appropriate because of the APB requirement of reporting all significant investing and financing activities.

## **STATEMENT OF CHANGES IN FINANCIAL POSITION—CASH BASIS**

Having presented a simple illustration showing the preparation of a statement of changes in financial position that focused on working capital, a statement of changes on a cash

## Chapter Two

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basis will be illustrated. Such a statement deals primarily with reporting the sources and uses of cash and is often referred to simply as a cash flow statement.

A cash basis statement of changes in financial position differs from one focusing on working capital primarily in the funds from operations section. A cash basis statement reports both cash and working capital from operations. ***Cash flow from operations*** is the net amount of cash received or disbursed on items which normally appear on the income statement. It is obtained by converting accrual basis net income to a cash basis amount.

### **Cash Provided by Operations**

There are two steps in converting net income to cash basis income. First, convert net income to working capital from operations by adding back or deducting from net income those items that did not use up or provide working capital. Second, convert working capital from operations to cash from operations by including the changes that occurred in current accounts other than cash. Applying these two steps to the CHADEY Company financial statements and other data in Illustration (2) yields the following schedule:



*Cash Flow Statement*

Net income .....	
L.E. 15,000	
Add expenses not reducing working capital—depreciation	
<u>7,500</u>	Working capital from operations .....
L.E. 22,500	Effects of changes in components of operating
working capital on cash:	
Increase in accounts receivable .....	L.E. (15,000)
Decrease in inventories .....	6,000
Decrease in accounts payable .....	(7,500)
Increase in accrued liabilities.....	<u>3,000</u>
(13,500)	
Cash provided by operations	
L.E. <u>9,000</u>	

The L.E. 15,000 increase in accounts receivable is deducted from accrual basis net income to convert it to cash basis income. If accounts receivable increased in a period, sales to customers exceeded collections from customers. Accrual basis sales revenue

To clarify the effect of the inventory change upon the conversion, assume that all purchases are for cash. Cost of goods sold on a cash basis is the amount paid for merchandise

## Chapter Two

during the period. Purchases would be L.E. 144,000, computed as follows:

Ending inventory .....	L.E. 39,000
+Cost of goods sold.....	<u>150,000</u>
Cost of goods available for sale....	L.E. 189,000
—Beginning inventory .....	<u>45,000</u>
Purchases .....	L.E. <u>144 000</u>

If all purchases are for cash, cost of goods sold under cash basis is L.E. 144,000, which is L.E. 6,000 less than the L.E. 150,000 accrual basis amount. Thus, L.E. 6,000 must be added to accrual basis net income to convert it to cash basis.

However, because accounts payable changed, purchases were not for cash but on account. Accounts payable decreased during the year, so suppliers were paid more in cash during the year than was purchased from them. Thus, expenses on a cash basis were L.E. 7,500 greater than on an accrual basis. So, L.E. 7,500 is deducted from accrual basis net income to convert it to cash basis.

Alternatively, since cost of goods sold on a cash basis is the amount of cash paid for goods during the period, the following calculation could have been made rather than the two preceding computations:

## Cash Flow Statement

Accounts payable, January 1 .....	L.E. 22,500
Purchases (from prior schedule) .....	<u>144,000</u>
<b>Total</b> .....	L.E. 166,500
Accounts payable, December 31 .....	<u>15,000</u>
Cash paid to suppliers during the year...	L.E. <u>151,500</u>

Cash basis cost of goods sold is L.E.151,500, or L.E.1,500 more than the accrual basis amount. Therefore, net income on a cash basis is L.E.1,500 less than the accrual basis amount. The L.E.1,500 deduction agrees with the net amount of the individual analyses: L.E.7,500 deducted for the decrease in accounts payable, and L.E.6,000 added for the decrease in inventory nets out to a L.E.1,500 deduction.

Accrued liabilities would be handled in a manner similar to accounts payable. Prepaid expenses would be treated the same as accounts receivable or inventory. These conversion procedures can be summarized as follows:

For changes in these to working capital items: accrual basis net I income	Make these adjustments convert income to cash basis net	
	Add	Deduct
Accounts receivable	Decrease	Increase
Inventories.....	Decrease	Increase
Prepaid expenses...	Decrease	Increase
Accounts payable...	Increase	Decrease
Accrued liabilities	Increase	Decrease

Notice in the above summary that in converting from accrual to cash basis, all changes in current asset accounts are handled in a similar manner. All changes in current liability accounts are also handled in a similar manner, but that manner is exactly the opposite from handling of the current asset changes.

The complete adjustment or conversion procedure used in the following comprehensive example is summarized below:

Accrual basis net income

+ Expenses and losses not reducing working capital

– Revenues and gains not producing working capital

= Working capital from operations

+ Decreases in current assets (except cash) and

increases in current liabilities

– Increases in current assets (except cash) and decreases  
in current liabilities

= Cash from operations

### Cash Basis Statement Preparation

The complete statement of changes in financial position on a cash basis is presented in Illustration (5). A comparison of this statement with the one in Illustration (4) shows that the two statements are virtually identical, except for the section ***"Effects of changes in components of operating working capital on cash"*** in the cash basis statement in Illustration (5).

There are two reasons for this similarity:

1. Most sources and uses of funds involve cash receipts and disbursements and would be reported in the same way whether cash or working capital was the focus of attention.



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## Illustration (5):

## Statement of changes in financial position—cash basis

CHADEY COMPANY	
Statement of Changes in Financial Position—Cash Basis	
For the Year Ended December 31, 1985	
<b><u>Financial resources provided:</u></b>	
By operations:	
Net income .....	
L.E.15,000	
Add nonworking capital expenses:	
Depreciation.....	
<u>7,500</u>	
Working capital from operations . . .	
L.E.22,500	
Effects of changes in components of operating working	
Capital on cash:	
Increase in accounts receivable	L.E.(15,000)
Decrease in inventories	6,000
Decrease in accounts payable	(7,500)
Increase in accrued liabilities	<u>3,000</u>
<u>L.E.(13,500)</u>	

*Cash Flow Statement*

9,000

Issuance of common stock .....

45,000

Total financial resources provided

L.E. 54,000

**Financial resources applied:**

Purchase plant assets..... L.E. 31,000

Dividends..... 6,500

Total financial resources applied

37,500

Increase in cash

L.E. 16,500

Cash, December 31, 2003

15,000

Cash, December 31, 2004

L.E. 31,500

Increase in working capital .....

2. The cash basis statement was prepared by focusing on working capital first and then making the adjustments necessary to convert working capital from operations to cash from operations.

### ***A COMPREHENSIVE ILLUSTRATION***

Presented and discussed below is a more complete example of the procedures followed to prepare a cash basis statement of changes in financial position. A working paper (shown later in Illustration 8) is used to aid in preparing the statement. The use of a working paper to prepare a working capital basis statement of changes in financial position is shown in the solution to the demonstration problem. The working paper in Illustration (8) could, with only minor revision, be adapted to a working capital focus.

The basic data for the example are found in Illustrations (6) and (7), which present the income statement and comparative balance sheets of The Texas Corporation. Assume the following information about the noncurrent accounts is available:

1. There were no purchases of investments during the year. Investments with a L.E. 4,000 cost were sold for L.E. 4,850.

**Illustration (6):****Statement of income and retained earnings****THE TEXAS CORPORATION****Statement of Income and Retained Earnings****For the Year Ended December 31, 2004**

Net sales .....

L.E.732,100

Cost of goods sold .....

435,575

Gross margin .....

296,525

**Operating expenses:**

Salaries .....

L.E.107,500

Depreciation expense

(L.E.1,625,buildings,L.E.15,525, equipment)

17,150

Supplies .....

3,660

Advertising .....

45,000

Taxes, payroll and other .....

13,000

General administrative expenses .....

61,890

*Total operating expenses*

248,200

Net income from operations

L.E.48,325

**Other revenues:**

Interest earned .....

975

Gain on sale of long-term investments .....

850      1,825

50,150

**Other expenses:**

Interest expense .....

1,900

Loss on sale of equipment .....

450      2,350

Net income before income taxes .....

47,800



*Cash Flow Statement*

Deduct: Income taxes .....	
<u>22,625</u>	
Net income .....	
25,175	
Retained earnings, January 1 .....	
<u>42,050</u>	
67,225	
Deduct: Dividends declared .....	
<u>9,000</u>	
Retained earnings, December 31 .....	
<u>L.E. 58,225</u>	

## Illustration (7): Comparative balance sheets

- Land and buildings valued at L.E.32,500 (L.E.22,500 for the buildings and L.E.10,000 for the land) were acquired, subject to a 10 percent mortgage note of L.E.17,500.
- During the year, the corporation disposed of equipment that had an original cost of L.E.10,000 and accumulated depreciation of L.E.8,250. The equipment was sold for L.E.1,300.

4. The common stock was sold for cash.

**Illustration (7): Comparative balance sheets**

THE TEXAS CORPORATION			
Comparative Balance Sheets			
December 31, 2002, and 2003			
	2003	2002	Increase or decrease*
<b>Assets</b>			
<b>Current assets:</b>			
Cash.....	L.E. 23,150	L.E. 20,450	L.E. 2,700
Accounts receivable, net.....	56,080	50,500	5,580
Marketable securities.....	1,500	- 0 -	1,500
Inventories.....	63,800	57,650	6,150
Prepaid expenses.....	<u>1,500</u>	<u>2,350</u>	<u>800*</u>
<b>Total current assets.....</b>	<b><u>146,080</u></b>	<b><u>130,950</u></b>	<b><u>15,130</u></b>
<b>Investments.....</b>	<b>L.E. <u>8,500</u></b>	<b>L.E. <u>12,500</u></b>	<b>L.E. 4,000*</b>
<b>Property, plant, and equipment:</b>			
Land.....	L.E. 50,000	L.E. 40,000	L.E. 10,000
Buildings.....	87,500	65,000	22,500
Accumulated depreciation-building (14,875)	(14,875)	(13,250)	(1,625)
Equipment.....	99,000	87,500	11,500

Accumulated depreciation-equipment (28,825) (21,550) (7,275)

**Total Property, plant, and equipment** 192,800 157,700 35,100

**Total Assets.....** 347,380 301,150 46,230

### **Liabilities and Stockholder's Equity**

#### **Current Liabilities:**

Accounts payable..... L.E.41,210 L.E.39,435 L.E.1,775

Accrued liabilities..... 4,945 6,115 1,170\*

Estimated income tax liability... 6,000 7,050 1,050\*

Dividends payable ..... 4,500 4,000 500

**Total Current Liabilities** L.E.56,655 L.E.56,600 L.E. 55

#### **Long-term liabilities:**

Mortgage note payable, 10% (on  
Land and buildings)..... L.E.17,500 L.E. - 0 - L.E.17,500

Bonds payable, 8% due 2005..... 20,000 20,000 - 0 -

**Total Long-term liabilities** 37,500 20,000 17,500

**Total Liabilities .....** L.E. 94,155 L.E. 76,600 L.E.17,555

#### **Stockholder's equity:**

Common stock, stated value,

L.E.50 per share..... L.E.195,000 L.E.182,500 L.E.12,500

Retained earnings..... 58,225 42,050 16,175

**Total Stockholder's equity** 253,225 224,550 28,675

#### **Total Liabilities and**

**Stockholder's Equity** L.E.347,380 L.E. 301,150 L.E.46,230

The working paper in Illustration (8) for The Texas Corporation is used to analyze the transactions and prepare the statement of changes in financial position.

**Illustration (8):**

**Working paper for statement of changes in financial position—cash**

<b>THE TEXAS CORPORATION</b> <b>Working Paper for Statement of Changes</b> <b>in Financial Position- Cash Basis</b> <b>For the Year Ended December 31, 2003</b>				
	Account Balances 12/31/02	Analysis of Transactions for 2003		Account Balances 12/31/03
		Debit	Credit	
<i>Debit</i>				
Cash	20,450	(1) 2,700		23,150
Accounts receivable	50,500	(10) 5,580		56,080
Marketable securities	- 0 -	(16) 1,500		1,500
Inventories	57,650	(11) 6,150		63,800
Prepaid expenses	2,350		(12) 800	1,550
Investments	12,500		(2) 4,000	8,500
Land	40,000	(3) 10,000		50,000
Buildings	65,000	(3) 22,500		87,500
Equipment	<u>87,5000</u>	(5) 21,500	(4)	<u>99,000</u>

			10,000	
<b>Total</b>	<u>335,950</u>			<u>391,080</u>
<b>Credit</b>				
Accumulated depreciation-buildings	13,250		(6) 1,625	14,875
Accumulated depreciation-equipment	21,550	(4) 8,250	(6) 15,525	28,825
Accounts payable	39,435		(13) 1,775	41,210
Accrued Liabilities	6,115	(14) 1,170		4,945
Income tax liability	7,050	(15) 1,050		6,000
Dividends payable	4,000	(17) 8,500	(9) 9,000	4,500
Mortgage note payable	- 0 -		(3) 17,500	17,500
Bonds payable	20,000			20,000
Common stock	182,500		(7) 12,500	195,000
Retained earnings	<u>42,050</u>	<u>(9) 9,000</u>	<u>(8) 25,175</u>	<u>58,225</u>
<b>Total</b>	<u>335,950</u>	<u>97,900</u>	<u>97,900</u>	<u>391,080</u>



The discussion that follows will describe the items and trace their effects in the entries made on the working paper.

The steps in preparing the working paper are as follows:

1. Enter the balance of each balance sheet account at the beginning of the period in the first column and at the end of the period in the fourth column. Notice the debit items are listed first, followed by the credit items.
2. Total the debits and the credits in the first and fourth columns to determine that the debits equal credits in each column.

**Illustration (8) (concluded)**

	Account Balances 12/31/02	Analysis of Transactions for 2003		Account Balances 12/31/03
		Debit	Credit	
Financial resources provided:				
By operations:				
Net Income		(8) 25,175		
Depreciation-buildings		(6) 1,625		
Depreciation-equipment		(6) 15,525		
Loss on sale of equipment		(4) 450		
Gain on sale of investment			(2) 850	

*Cash Flow Statement*

Increase in accounts receivable		(10) 5,580	
Increase in Inventories		(11) 6,150	
Decrease in prepaid expenses	(12) 4,850		
Increase in accounts payable	(13) 1,775		
Decrease in accrued liabilities		(14) 2,270	
Decrease in income tax liability		(15) 1,050	
<b>Other sources</b>			
Sales of investment	(2) 4,850		
Assumption of mortgage note	(3) 17,500		
Sales of equipment	(4) 1,300		
Issuance of common stock	(7) 12,500		
<b>Financial resources applied:</b>			
Purchase of marketable securities		(16) 1,500	
Acquisition of land and buildings		(3) 32,500	
Acquisition of equipment		(5) 21,500	
Payment of cash dividends		(17) 8,500	
Increase in cash for year		(1) 2,700	
<b>Total</b>	<b>81,500</b>	<b>81,500</b>	

3. Write "Financial resources provided" immediately below the total of the credit items. Skip sufficient lines on which to record all sources of funds. Then write "Financial resources applied."

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4. Analyzing entries are entered in the second and third columns. The entries, which may be made in any order, serve two functions: (a) they explain the change in each account and (b) they record the sources and uses of funds. These entries will be discussed individually.

5. Total the debits and credits in the second and third columns. There will be one pair of totals for the balance sheet items and another pair for the sources and uses of funds. The bottom portion of the working paper is used to prepare the formal statement of changes in financial position.

### **Completing the Working Paper**

The working paper in Illustration (8) is completed by analyzing the change in each noncash balance sheet account. An increase or decrease in cash can be explained by changes in the noncash balance sheet accounts because every increase or decrease in cash was accompanied by a change in a noncash balance sheet account. After entries have been properly made to analyze all changes in noncash balance sheet accounts, the working paper will show all sources and uses of cash. The explanations below are keyed to the entries on the working paper by numbers.

**Entry 1.** The beginning and ending cash balances are compared to determine the change for the year, which is a L.E.2,700 increase. An entry is made on the working paper debiting Cash for L.E.2,700 and crediting Increase in Cash for Year under "Financial resources applied." This entry indicates that of the cash flowing into the company during the year, L.E.2,700 was used to increase the Cash balance. The entry also sets out the change in cash that the statement seeks to explain. No further attention need be paid to cash in completing the working paper.

Attention is now directed toward changes in other balance sheet accounts. These accounts can be dealt with in any order. But, in order to group certain items, the noncurrent accounts are analyzed first.

**Entry 2.** The first noncurrent account is Investments. The additional information discloses that investments were sold at a gain that was recorded in the following manner:

Cash .....	4,850
Investments.....	4,000
Gain on Sale of Investments.....	850

Since cash changes and their causes are the focus of the working paper, the following entry is made on the working paper to show the source of cash.

Sale of Investments .....	4,850
Investments.....	4,000
Gain on Sale of Investments ....	850

The working paper now shows L.E 4,850 cash provided by sale of investments and a L.E 850 reduction in cash provided by operations. The gain on sale of investments is removed from cash provided by operations and included as part of the cash provided by sale of investments. If the L.E 4,850 cash received from the sale is reported and the gain is not removed from cash provided by operations, the L.E 850 gain is shown or counted twice. Note that the working paper entry is identical to the original journal entry for the sale, except for the L.E 4,850 debit. Instead of debiting Cash, a properly described source of cash is debited. The sources and uses of cash are shown in the lower section of the working paper. The L.E 4,000 credit accounts fully for the decrease in the Investments account.



*Cash Flow Statement*

**Entry 3.** The changes in the Land and Buildings accounts resulted from the following entry:

Land .....	10,000	
Buildings.....	22,500	
		Cash .....
		15,000
		Mortgage Note Payable .....
		17,500

The transaction requires two entries on the working paper. **First**, Land and Buildings are debited for L.E 10,000 and L.E 22,500, respectively, and a cash applied item described as "Acquisition of Land and Buildings" is credited for L.E 32,500. **Second**, a source of cash called "Assumption of Mortgage Note" is debited and Mortgage Note Payable is credited for L.E 17,500. In other words, the transaction is treated as if the mortgage note was issued for cash and then L.E 32,500 cash had been spent to acquire land and buildings. This transaction is an example of a significant financing and investing activity that must be included on the statement even though it did not directly affect funds.

**Entry 4.** The Equipment account shows a net increase of L.E 11,500 resulting from two transactions: a L.E 10,000 retirement and a L.E 21,500 purchase. The net change in the account must be analyzed to show both cash provided and cash

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applied. The amount shown under "Other sources" from the sale of equipment is the amount received for the equipment. These data were included in the additional information given. The computation can be summarized as follows:

Cost of equipment sold .....	L.E 10,000
Less: Accumulated depreciation ....	<u>8,250</u>
Book value of equipment sold .....	L.E 1,750
Less: Loss on sale .....	<u>450</u>
Cash received .....	L.E <u>1,300</u>

The complete working paper entry for sale of equipment is:

Sale of Equipment.....	1,300	
Accumulated Depreciation—Equipment	8,250	
Loss on Sale of Equipment.....	450	
Equipment.....		10,000

This entry records cash provided by the sale of equipment and explains part of the changes in Equipment and Accumulated Depreciation—Equipment. The loss is added back to net income as a noncash deduction in arriving at net

income. The loss has exactly the same effect as depreciation or the write-off of any noncash asset.

**Entry 5.** This entry debits the Equipment account and credits Acquisition of Equipment for the L.E 21,500 cash spent to acquire new equipment.

**Entry 6.** This entry adds L.E 1,625 building depreciation and L.E 15,525 equipment depreciation back to net income and credits the respective accumulated depreciation accounts. The L.E 15,525 credit to the accumulated depreciation account for equipment less the L.E 8,250 debit to this account in Entry 4 explains fully the increase in this account from L.E 21,550 to L.E 28,825.

**Entry 7.** This entry shows the L.E 12,500 cash received from the sale of common stock as an "Other source" of cash. The entry also explains completely the change in the Common Stock account. If stock had been sold for more than its stated value of L.E 50 per share, the excess would be recorded in a separate Paid-In Capital in Excess of Stated Value account. The total amount of cash received from the issuance would have been reported on the statement of changes in financial position as a single figure (even though two accounts would have been affected) because only the total amount received is significant.

**Entry 8.** The statement of retained earnings and income statement reveal that net income for 2003 was L.E 25,175. Entry 8 records the L.E 25,175 as the starting point in measuring cash from operations and credits Retained Earnings as a partial explanation of the change in that account.

**Entry 9.** This entry debits Retained Earnings and credits Dividends Payable for the L.E 9,000 of dividends declared. The entry also completes the explanation of the change in Retained Earnings ( $\text{L.E } 42,050 + \text{L.E } 25,175 - \text{L.E } 9,000 = \text{L.E } 58,225$ ).

In regard to this entry, the credit was made to Dividends Payable for the L.E 9,000 of dividends declared rather than to a financial resources applied item because the statement of changes is focusing on cash. The amount of dividends declared would be reported on the statement of changes if the statement were prepared under a working capital basis. To find the amount of dividends paid, the change in the Dividends Payable account must be included in the analysis, which is done in entry 17 below.

If Retained Earnings had changed for reasons other than net income or cash dividends, the causes of the changes must be determined in order to decide whether they should be reported in the statement of changes in financial position. Transactions



such as stock dividends and stock splits would not be reported because they lack significance from an analytical viewpoint and because these items never affect cash or working capital. But an entry must be made on the working paper to explain the changes caused by a stock dividend or split, even if cash was not affected. All changes in all noncash accounts must be explained to show that a change affecting cash was not overlooked.

The next task is to analyze changes in current accounts other than Cash. Most of these accounts are closely related to operations, and their changes are included in converting net income to cash from operations. The changes in the current accounts are analyzed in the manner previously discussed.

**Entry 10.** The L.E 5,580 increase in accounts receivable must be deducted from net income when converting it to cash from operations. If accounts receivable increased, sales to customers exceeded cash received from customers. Accrual basis revenue and net income are larger than revenue (receipts) and net income on a cash basis. To convert net income to cash basis, the L.E 5,580 must be deducted.

The working paper technique used makes the recording of these effects almost mechanical. Accounts Receivable must be debited for L.E 5,580 to increase it from L.E 50,500 to L.E



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56,080. If Accounts Receivable is debited, a credit must be entered for an item that can be entitled "Increase in Accounts Receivable." The increase is a deduction from net income in converting it to cash from operations.

**Entry 11** is virtually a duplicate of entry 10, except that it involves inventories rather than receivables.

**Entry 12** is similar to the above two entries, except that it is reversed because prepaid expenses decreased.

**Entry 13** records the effects of an increase in accounts payable on net income in converting it to cash from operations.

**Entries 14 and 15** record the effects of decreases in two other current liability accounts (accrued liabilities and income tax liability) in converting net income to cash from operations.

**Entry 16.** The increase in marketable securities results from a purchase of such investments. The purchase of marketable securities is not related to net income in any way. Thus, the increase in this account is treated as an application of cash rather than an adjustment of net income. Marketable Securities is debited and a credit entered for the purchase in the cash applied section of the working paper.

**Entry 17.** This entry records the amount of dividends that were paid during the period. Entry 9 recorded L.E 9,000 of dividends declared in the Dividends Payable account, which

increased its balance to L.E 13,000 (L.E 4,000 + L.E 9,000).

But the liability for dividends was only L.E 4,500 at the end of the period. So L.E.8,500 of cash must have been paid to stockholders as dividends. Thus, entry 17 debits Dividends Payable and credits financial resources applied to Payment of Cash Dividends.

The analysis of the noncash accounts is now complete. To be sure that a change has not been overlooked, the debits and credits in the middle two columns opposite the 2002 balances are added to or subtracted from those balances, line by line. If the working paper has been properly prepared, the results will be the 2003 balances listed in the fourth column. For example, the L.E 21,500 debit is added to the beginning balance for Equipment, and the L.E 10,000 credit deducted to get an ending balance of L.E 99,000. Next, the debits and credits for the balance sheet account entries and for the funds statement items are added to make sure that they are equal in both sections. Note that entries made in the working paper are used only to derive cash flows into and out of the firm. These entries are not entered in the firm's accounting systems because the transactions that caused the fund flows have already been recorded.

### **The Formal Statement**

The data in the lower section of the working paper are now used to prepare the formal statement of changes in financial position shown in Illustration (9). A standard format has not been prescribed for this statement. Both the APB and FASB have recommended experimentation using alternative forms.

Several features of Illustration (9) should be noted. The two sections are headed "Financial resources provided" and "Financial resources applied" reflecting the reporting of all significant financing and investing activities as required by APB Opinion No. 19. The headings are appropriate since an exchange involving assumption of liability on a mortgage note for land and buildings is reported. Note that the statement reports both working capital and cash provided by operations.

### **Losses on the Working Paper**

If a firm incurs a net loss for a period, the entry on the working paper debits Retained Earnings and credits Net Loss under the heading "Financial resources provided by operations." Then the net loss is adjusted for the nonfund items. After these adjustments, the firm may have funds provided by or applied to operations. If funds were applied to operations, all data relative to the net loss and its adjustments will be shown in the

"Resources applied" section of the formal statement of changes in financial position.

**Illustration (9):**

Statement of changes in financial position—cash basis

**THE TEXAS CORPORATION Statement of Changes in  
Financial Position—Cash Basis  
For the Year Ended December 31, 2002**

**Financial resources provided:**

By operations:

Net income.....	L.E. 25,175	
Add: Charges not requiring outlay of funds:		
Depreciation—building.....	L.E. 1,625	
Depreciation—equipment.....	15,525	
Loss on sale of equipment .....	<u>450</u>	<u>17,600</u>
		42,775

**Deduct: Credits not providing funds:**

Gain on sale of investments .....	<u>850</u>
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<b>Working capital provided by operations ....</b>	<b>41,925</b>
--	---------------

Effect of changes in components of operating working capital on cash:

Increase in accounts receivable .....	L.E. (5,580)
Increase in inventories.....	(6,150)



Decrease in prepaid expenses .....	800	
Increase in accounts payable .....	1,775	
Decrease in accrued liabilities .....	(1,170)	
Decrease in income tax liability .....	<u>(1,050)</u>	<u>(11,375)</u>
<b>Cash provided from operations .....</b>		<b>30,550</b>
Other resources provided:		
Sale of investments.....	L.E.4,850	
Assumption of mortgage note .....	17,500	
Sale of equipment.....	1,300	
Issuance of common stock .....	<u>12,500</u>	<u>36,150</u>
<b>Total financial resources provided .....</b>		<b>66,700</b>
Financial resources applied:		
Purchase of marketable securities .....	1,500	
Acquisition of land and building .....	32,500	
Acquisition of equipment .....	21,500	
Payment of cash dividends .....	<u>8,500</u>	
<b>Total financial resources applied .....</b>		<b><u>64,000</u></b>
Increase in cash for the year .....		2,700
Cash: Beginning of year .....		<u>20,450</u>
Cash: End of year .....		L.E.23,150



## Working Paper for Statement of Changes on a Working Capital Basis

Entries 2 through 9 in Illustration (8) analyze noncurrent account changes that had a cash effect. Since cash is an element of working capital, the same entries, with one exception, would be made in preparing a statement of changes focusing on working capital. The exception is entry 9 which under a working capital focus would be entered on the working paper as a debit to Retained Earnings and a credit to Working Capital Applied to Dividends. (For a comprehensive illustration of this working paper technique, see the solution to the demonstration problem.) The first line of a working paper for a statement of changes focusing on working capital for The Texas Corporation would show L.E. 74,350 of working capital at the end of 2002 and L.E. 89,425 at the end of 2003. Entry 1 would debit Working Capital for L.E. 15,075 and credit Increase in Working Capital on the last line of the working paper. This single working capital amount would be substituted for the nine current asset and current liability accounts listed on the working paper for a cash basis statement of changes.

Also, note in The Texas Corporation illustration that entries for net income and nonworking capital charges and credits are grouped to make it easy to compute working capital from operations. This amount is L.E.41.925 which was computed by totaling the first five items (down through gain on sale of investments) in the lower section of the working paper in Illustration 8.

## **USES OF THE STATEMENT OF CHANGES IN FINANCIAL POSITION**

The statement of changes in financial position summarizes the financing and investing activities of a firm for a period. It reports upon past management decisions regarding such matters as issuance of capital stock or sale of long-term bonds. The statement directly reports information that is otherwise obtainable only in bits and pieces from the balance sheets and statements of income and retained earnings. Included in the statement is information on cash or working capital flows that are vital to a firm's financial health. Such information is useful to management and all other interested parties, especially creditors and investors.

### **Management Uses**

Management can use the statement of changes to determine why there are cash or working capital shortages if

the company has been experiencing problems in these areas. Management may, after study of the information, change its dividend policy to conserve funds. Or the statement may show a flow of funds from operations large enough to finance all projected capital needs internally rather than through borrowings or stock issues. Since the statement presents all significant financing and investing activities, management can see the effects of its past major policy decisions in quantitative form by reviewing the statement of changes.

### **Creditor and Investor Uses**

Information on the statement of changes in financial position may provide creditors and investors with valuable clues to:

1. The extent to which internally generated funds cover projected capital needs.
2. The likelihood of the company paying or increasing future dividends.
3. Management's preferences toward financing and investing activities.
4. The firm's ability to make principal and interest payments on its debt.
5. Whether, in the light of available resources, a planned expansion is feasible.

## WORKING CAPITAL OR CASH FLOWS

In the past, statements of changes in financial position have generally focused on working capital flows. Such statements were prepared for several reasons. Information was needed about the flows of liquid assets (working capital) through a firm; such flows are the lifeblood of a business. Possible changes in accounting principles and the use of accrual accounting yielded net income amounts that often were not good measures of such liquid asset flows from operations. Attention focused on working capital rather than cash because little significance was attached to the composition of working capital. Working capital turned over quickly enough so that, if not now in cash form, it would be shortly.

Recent events suggest that in the coming years, statements of changes in financial position will focus increasingly upon cash flows. In the recent periods of high rates of inflation and depressed economic conditions, many firms experienced severe cash flow, not working capital, problems. The **FASB** noted the importance of cash flows in the Conceptual Framework Project, and made the statement "that the reporting of meaningful components of cash flows is generally more useful than reporting changes in working capital." Shortly after publication of this statement, the Financial Executives Institute



recommended that its members adopt the cash basis in preparing a statement of changes in financial position. Approximately 95 percent of the companies with securities traded on the New York Stock Exchange and the American Stock Exchange are represented in the Financial Executives Institute.

The shifting of attention from working capital flows to cash flows also is supported by developments in modern finance. The investment decision is seen more clearly as one in which cash outlays are compared with expected cash returns, appropriately discounted for time and risk. Management, investors, and creditors are all alike in that each invests cash to get future cash returns. Thus, information is needed to enable users to make predictions of the amounts, timing, and uncertainty surrounding expected cash receipts.

Information on prior cash flows provides a better basis for making predictions of cash flows than does information on past working capital flows. This statement is true because it has been shown that past cash flows often differed sharply from working capital flows. For example, a rapidly expanding business will most likely find that it is increasing its working capital by expanding inventories and accounts receivable, yet



never seeming to have enough cash to meet current bills. Cash flow analysis is necessary to reveal such problems.

The statement of changes in financial position is one of the four major statements prepared by business firms. Its purpose is analytical in that it attempts to explain how financial resources were acquired during a period, how financial resources were used, and what the net effect was on the company's working capital or cash position. Being an analytical tool, the statement of changes in financial position is an excellent means for assessing the quality of an organization's management.

In preparing the statement of changes in financial position, the first step is to prepare a schedule of changes in working capital. Then, each noncurrent balance sheet account is analyzed to see what effect changes in it had on working capital during the period. These changes in noncurrent account balances are organized in

terms of representing either financial resources provided or financial resources applied during the period.

Some firms prefer to prepare the statement of changes in financial position on a cash basis instead of a working capital basis. This statement focuses on cash flow into and out of an organization. A key element in the preparation of the cash

basis statement is to adjust the income statement from an accrual to a cash basis. Once this adjustment has been made, changes in noncurrent balance sheet accounts are analyzed for their effects on the Cash account, and the resulting cash inflows and cash outflows are organized into a formal cash basis statement of changes in financial position.

### **TERMS INTRODUCED IN THIS CHAPTER**

***All-financial resources concept***—a method of presentation of a statement of changes in financial position where all significant financing and investing activities are presented regardless of whether cash or working capital is used to measure basic fund flows.

***Cash flow from operations***—the net amount of cash received or disbursed for a given period on items that normally appear on the income statement. Usually obtained by converting accrual basis net income to a cash basis amount.

***Cash flow statement***—another title for a statement of changes in financial position prepared under cash basis; sometimes used as a title for a statement or schedule showing cash flows into and out of a business, together with beginning and ending cash balances.

***Financial resources applied***—the most all-inclusive title used to describe the uses made of a firm's resources in a period. In

certain instances, the more restrictive titles of working capital applied or cash applied may be substituted.

***Financial resources provided***—the most all-inclusive title used to describe the sources of the resources flowing into a firm in a period. In certain instances, the more restrictive titles of sources of working capital or sources of cash may be appropriate.

***Funds***—broadly, the financial resources of a firm; often defined as working capital or cash.

***Indirect (or addhack) method***— a way of determining cash or working capital from "operations that starts with net income and adjusts for expenses and revenues that do not affect cash or working capital.

***Non working capital (nonfund) charges or expenses***— expenses and losses deducted in arriving at net income that do not reduce working capital; examples are depreciation, depletion, and amortization of patents and goodwill.

***Nonworking capital (nonfund) credits or revenues*** — revenues and gains included in arriving at net income that do not provide working capital; an example is discount amortized and included in interest revenue earned on bond investments purchased at a discount.

**Source of funds**—a transaction that brings cash or working capital into the business.

**Statement of changes in financial position**—a statement that reports the flows of cash or working capital into and out of a business in a given time period; will also show significant financing and investing activities that do not involve cash or working capital flows.

**Statement of changes in working capital**—a statement listing all current assets and current liabilities, their beginning and ending balances, and the changes in the balances summarized into a single amount—the net change in working capital.

**The schedule of changes in working capital components** shows only the change in each working capital item summarized into a single amount.

**Use of funds**—a transaction that removes cash or working capital from the business.

**Working capital**—a possible definition of funds; the excess of current assets over current liabilities.

**Working capital from operations**—working capital generated by the regular operation of a business; usually computed as net income plus nonworking capital expenses deducted in arriving at net income, minus nonworking capital revenues include



## QUESTIONS

1. The term funds is used in many different ways in accounting. Indicate several of these uses other than those given in this chapter. What are the concepts of funds as the term is used in a statement of changes in financial position?
2. If the net income for a given period is L.E.25,000, does this mean that there is an increase of cash of the same amount? Why or why not?
3. Explain the difference between the direct and indirect methods for computing working capital from operations.
4. What are the major sources of funds in a business?  
What are the major uses of funds?
5. Does the declaration or the payment of dividends affect working capital? Why?
6. Why might a company have a positive inflow of cash from operations even though operating at a net loss?
7. What are nonfund (nonworking capital or noncash) expenses? Of what significance are they?
8. Describe the treatment of a gain on the sale of equipment in preparing a statement of changes in financial position.



9. Why might an analysis of working capital flow be unsuitable for short-run planning?
10. Why is it unlikely that cash flow from operations will be equal to net income for the same period?
11. In what respects does cash flow analysis differ from working capital flow analysis?
12. In the preparation of a funds statement under the working capital basis, why are the noncurrent accounts analyzed rather than the current accounts?
13. Depreciation is often referred to as a source of funds. Is it a source of funds? Explain.
14. Give two reasons why analysts seem to prefer cash flow statements to statements that report working capital flows.

## EXERCISES

- E-1. Indicate how the following data should be reported in a statement of changes in financial position. A company purchased land valued at L.E.30,000 and a building valued at L.E.60,000 by payment of L.E.15,000 by check, signing a L.E.22,500 interest-bearing note due in six months, and by assuming a L.E.52,500 mortgage on the property.
- E-2. A company sold for L.E.2,500 equipment having an original cost of L.E.3,500 and on which L.E.2,000 of

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depreciation had been recorded. The gain was included in net income.

How should this data be shown in the statement of changes in financial position and why?

E-3. The following data are from the Automobile and the Accumulated Depreciation—Automobile accounts of a certain company:

## Automobile

	Date	Debit	Credit	Balance
Jan. 1	Balance brought forward .....			L.E.8,000
July 1	Traded for new auto.....	L.E.8,000		-0
	New auto .....	L.E.8,800		8,800

## Accumulated Depreciation—Automobile

Jan. 1	Balance brought forward .....		L.E.6,000
July 1	One-half year's depreciation ....	E.1,000	7,000
	Auto traded .....	L.E.7,000	-0
Dec.31	One-half year's depreciation ....	1,100	1,100

*Cash Flow Statement*

The old auto was traded for a new one with the difference in values paid in cash. The income statement for the year shows a loss on the exchange of autos of L.E.600.

Indicate the dollar amounts, the descriptions of these amounts, and their exact locations in a statement of changes in financial position.

E-4. Following are balance sheet data for the Cooper Corporation.

	December 31, 2004	December 31, 2003
Cash .....	L.E. 23,500	L.E. 13,000
Accounts receivable.....	70,500	67,000
Inventories.....	41,500	51,000
Prepaid expenses.....	4,500	5,500
Plant assets (net of accumulated depreciation) .....	117,500	115,000
Accounts payable.....	61,000	63,500
Accrued expenses payable .....	20,000	20,500
Capital stock .....	150,000	150,000
Retained earnings.....	26,500	17,500

Required;

Calculate the change in working capital for the year 1985.

E-5. Refer to the information in Exercise E-4. Assume that the depreciation recorded in 1985 was L.E.7,500. Compute the cash applied to purchase of plant assets assuming no assets were sold or scrapped in 1985.

E-6. Use the data in Exercise E-4. Assume the net income for 1985 was L.E.12,000, that depreciation was L.E.7,500, and that dividends declared and paid were L.E.3,000. Prepare a statement of changes in financial position using the working capital basis.

E-7. Refer to the data in Exercises E-4 and E-6. Prepare a statement of changes in financial position under the cash basis.

E-8. Given the net income for the year was L.E.30,000, patent amortization was L.E.750, loss on sale of patents was L.E.1,500, depreciation was L.E.3,000, gain on sale of equipment was L.E.900, and accumulated depreciation on

equipment was L.E.15,000. Compute working capital from operations.

E-9. A company's financial statements for a given year show sales of L.E.750,000, net income of L.E.75,000, and accounts receivable on January 1 of L.E.66,000 and L.E.70,500 on December 31. Compute the effect of the above information on net income as a measure of cash from operations.

E-10. The income statement of a company shows cost of goods sold of L.E.525,000 and net income of L.E.75,000, inventory on January 1 was L.E.76,500 and on December 31 was L.E.94,500, accounts payable for merchandise purchases were L.E.57,000 on January 1 and L.E.63,000 on December 31. Compute the effects of the above information on net income as a measure of cash from operations.

E-11. The operating expenses and taxes (including L.E.15,000 of depreciation) of a company for a given year were L.E.150,000. Net income was L.E.75,000. Prepaid insurance decreased from L.E.4,500 to L.E.3,000 during the



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year, while accrued wages increased from L.E.6,000 to L.E.9,000 during the year. Compute the effects of the above on net income as a measure of cash from operations.

E-12. Assume that the data in Exercises E-9, E-10, and E-11 above are for the same company. Prepare the section of the statement of changes in financial position showing conversion of net income to cash from operations. Show both working capital and cash from operations.

E-13. Dividends payable increased by L.E.1,500 during the year in which total dividends declared were L.E.30,000, What amount of dividends appears in the statement of changes in financial position under the working capital basis? What amount appears in the same statement prepared under the cash basis?

## Chapter Three

# Business Combinations

### *Learning Objectives:*

After studying this chapter you should be able to meet these learning objectives:

- Business combinations: Why and How?.
- Distinguish between the suggested definitions for terms commonly used in business combinations.
- Determine how to account and reporting for business combinations.
- Methods for business combinations.
- Methods of Accounting for business combinations.
- Review exercises and problems.

## Introduction:

**Business combinations** are events or transactions in which two or more business enterprises, or their net assets, are brought under common control in a single accounting entity. Other terms frequently applied to business combinations are **mergers** and **acquisitions**.

The Financial Accounting Standards Board has suggested the following definitions for terms commonly used in discussions of business combinations.

**Combined enterprise:** The accounting entity that results from a business combination.

**Constituent companies** The business enterprises that enter into a business combination.

**Combiner:** A constituent company entering into a purchase-type business combination whose owners as a group end up with control of the ownership interests in the combined enterprise.

**Combinee:** A constituent company other than the combiner in a business combination.

Business combinations may be divided into two classes—friendly takeovers and hostile takeovers. In a *friendly takeover*, the boards of directors of the constituent companies generally work out the terms of the business combination amicably and submit the proposal to stockholders of all constituent companies for approval.

## Scope of the Chapter

In the first section of this chapter I discuss reasons for the popularity of business combinations and techniques for arranging them. Then, the two methods of accounting for business combinations, that is, purchase and pooling of interests, are explained and illustrated ( without any emphasis on pooling of interests method). In the final section I evaluate the defects of purchase accounting and pooling-of-interests accounting, and current proposals for changes in accounting standards for business combinations.

### **Business Combinations:**

Why do business enterprises enter into a business combination? Although a number of reasons have been cited, probably the overriding one for combiners in recent years has been growth. Business enterprises have major operating objectives other than growth, but that goal increasingly has motivated combiner managements to undertake business combinations. Advocates of this external method of achieving growth point out that it is much more rapid than growth through internal means. There is no question that expansion and diversification of product lines, or enlarging the market share for current products, is achieved readily through a business combination with another enterprise. However, the disappointing experiences of many combiners engaging in business combinations suggest that much may be said in favor of more gradual and reasoned growth through internal means, using available management

and financial resources.

Other reasons often advanced in support of business combinations are obtaining new management strength or better use of existing management and achieving manufacturing or other operating economies. In addition, a business combination may be undertaken for the income tax advantages available to one or more parties to the combination.

### Antitrust Considerations

One obstacle faced by large corporations that undertake business combinations is the possibility of antitrust litigation. The U.S. government on occasion has opposed concentration of economic power in large business enterprises. Consequently, business combinations frequently have been challenged by the Federal Trade Commission or the Antitrust Division of the Department of Justice, under the provisions of Section 7 of the Clayton Act, which reads in part as follows:

No corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no corporation subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another corporation engaged also in commerce, where in any line of commerce in any section of the country the effect of such



acquisition may be substantially to lessen competition or to tend to create a monopoly.

### Methods for Arranging Business Combinations:

The four common methods for carrying out a business combination are **statutory merger, statutory consolidation, acquisition of common stock, and acquisition of assets.**

#### Statutory Merger:

As its name implies, a statutory merger is executed under provisions of applicable state laws. In a statutory merger, the boards of directors of the constituent companies approve a plan for the exchange of voting common stock (and perhaps some preferred stock, cash, or long-term debt) of one of the corporations (the *survivor*) for all the outstanding voting common stock of the other corporations.

To summarize, the procedures in a statutory merger are as follows:

1. The boards of directors of the constituent companies work out the terms of the merger.
2. Stockholders of the constituent companies approve the terms of the merger, in accordance with applicable corporate bylaws and state laws.
3. The survivor issues its common stock or other consideration to the stockholders of the other constituent companies in exchange for all their outstanding voting common stock of those companies.

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4. The survivor dissolves and liquidates the other constituent companies, receiving in exchange for its common stock investments the net assets of those companies.

#### **Statutory Consolidation:**

A statutory consolidation also is consummated in accordance with applicable state laws. However, in a consolidation a *new corporation is formed to issue its common stock* for the outstanding common stock of two or more existing corporations, *which then go out of existence*. The new corporation thus acquires the net assets of the defunct corporations, whose activities may be continued as divisions of the new corporation. To summarize, the procedures in a statutory consolidation are as follows:

1. The boards of directors of the constituent companies work out the terms of the consolidation.
2. Stockholders of the constituent companies approve the terms of the consolidation, in accordance with applicable corporate bylaws and state laws.
3. A new corporation is formed to issue its common stock to the stockholders of the constituent companies in exchange for all their outstanding voting common stock of those companies.
4. The new corporation dissolves and liquidates the constituent companies, receiving in exchange for its common stock investments the net assets of those companies.

#### **Acquisition of Common Stock:**

One corporation (the *investor*) may issue preferred or

common stock, cash, debt, or a combination thereof to acquire from present stockholders a controlling interest in the voting common stock of another corporation (the investee). This stock acquisition program may be accomplished through direct acquisition in the stock market, through negotiations with the principal stockholders of a closely held corporation, or through a tender offer to stockholders of a publicly owned corporation. A *tender offer* is a publicly announced intention to acquire, for a stated amount of consideration, a maximum number of shares of the combinee's common stock "tendered" by holders thereof to an agent, such as an investment banker or a commercial bank. The price per share stated in the tender offer usually is well above the prevailing market price of the combinee's common stock. If a controlling interest in the combinee's voting common stock is acquired, that corporation becomes *affiliated* with the combiner *parent company* as a *subsidiary*, but is *not dissolved and liquidated and remains a separate legal entity*. Business combinations arranged through common stock acquisitions require authorization by the combiner's board of directors and may require ratification by the combinee's stockholders. Most hostile takeovers are accomplished by this means.

### Acquisition of Assets:

A business enterprise may acquire from another enterprise all or most of the gross assets or net assets of the other enterprise for cash, debt, preferred or common stock, or a combination thereof. The transaction generally must be approved by the boards of directors and stockholders of the constituent companies. The selling enterprise *may continue its existence as a separate entity or it may be dissolved and liquidated*; it does not become an *affiliate* of the combiner.



### **Establishing the Price for a Business Combination:**

An important early step in planning a business combination in deciding on an appropriate price to pay. The amount of cash or debt securities, or the number of shares of preferred or common stock, to be issued in a business combination generally is determined by variations of the following methods:

1. Capitalization of expected average annual earnings of the combinee at a desired rate of return.
2. Determination of current fair value of the combinee's net assets (including goodwill).

The price for a business combination consummated for cash or debt generally is expressed in terms of the total dollar amount of the consideration issued. When common stock is issued in a business combination, the price is expressed as a ratio of the number of shares of the combiner's common stock to be exchanged for each share of the combinee's common stock.

### **Illustration of Exchange Ratio**

The negotiating officers of Palm Corporation have agreed with the stockholders of Shams Company to acquire all 20,000 outstanding shares of Shams common stock for a total price of L.E. 1,800,000. Palm's common stock presently is trading in the market at L.E.65 a share. Stockholders of Shams agree to accept 30,000 shares of Palm's common stock at a value of L.E.60 a share in exchange for their stock holdings in Shams. The exchange ratio is expressed as 1.5 shares of Palm's common stock for each share of Shams's common stock, in accordance with the following computation:

Number of shares of Palm Corporation common stock to be issued 30,000  
Number of shares of Shams Company common stock to be exchanged 20,000  
Exchange ratio:  $30,000 \div 20,000$  1.5 : 1

## Methods of Accounting for Business Combinations:

### Purchase Accounting:

Because the majority of business combinations involve an identified combinator and one or more combinees, many accountants consider it logical to account for *all* business combinations, regardless of how *consummated*, as the *acquisition of assets*. Thus, assets (including goodwill) acquired in a business combination for cash would be recognized at the amount of cash paid, and assets acquired in a business combination involving the issuance of debt, preferred stock, or common stock would be recognized at the current fair value of the assets or of the debt or stock, whichever was more clearly evident. This approach is known as *purchase accounting* for business combinations and was widely used prior to the increase in popularity of pooling-of-interests accounting. *APB Opinion No. 16*, "Business Combinations," set forth the concept of purchase accounting as follows.

Accounting for a business combination by the purchase method follows *principles* normally applicable under historical-cost accounting to record acquisitions of assets and issuances of stock and to accounting for assets and liabilities after acquisition.



**Determination of the Combiner:**

Because the carrying amounts of the net assets of the combiner are not affected by a business combination, the combiner must be accurately identified.

**Computation of Cost of a Combinee:**

The cost of a combinee in a business combination accounted for by the purchase method is the total of (1) the amount of consideration paid by the combiner, (2) the combiner's direct "out-of-pocket" costs of the combination, and (3) any *contingent consideration* that is determinable on the date of the business combination.

**(1) Amount of Consideration:**

This is the total amount of cash paid, the current fair value of other assets distributed, the present value of debt securities issued, and the current fair (or market) value of equity securities issued by the combiner.

**(2) Direct Out-of-Pocket Costs:**

Included in this category are some legal fees, some accounting fees, and finder's fees. A *finder's fee* is paid to the investment banking firm or other organization or individuals that investigated the combinee, assisted in determining the price of the business combination, and

otherwise rendered services to bring about the combination.

Costs of registering with the SEC and issuing *debt securities* in a business combination are debited to Bond Issue Costs; they are not part of the cost of the combinee. Costs of registering with the SEC and issuing *equity securities* are not direct costs of the business combination but are offset against the proceeds from the issuance of the securities. *Indirect* out-of-pocket costs of the combination, such as salaries of officers of constituent companies involved in negotiation and completion of the combination, are recognized as expenses incurred by the constituent companies.

### Allocation of Cost of a Combinee

*APB Opinion No. 16* provided the following principles for allocating cost of a combinee in a purchase-type business combination.

**First**, all identifiable assets acquired ... and liabilities assumed in a business combination ... should be assigned a portion of the cost of the acquired company, normally equal to their fair values at date of acquisition.

**Second**, the excess of the cost of the acquired company over the sum of the amounts assigned to identifiable assets acquired less liabilities assumed should be recorded as *goodwill*.

### Identifiable Assets and Liabilities

*APB Opinion No. 16* provides guidelines for assigning values to a purchased combinee's identifiable assets and

liabilities.<sup>5</sup> Among these were present values for receivables and liabilities; net realizable values for marketable securities, finished goods and goods in process inventories, and for plant assets held for sale or for temporary use; appraised values for intangible assets, land, natural resources, and non-marketable securities; and replacement cost for inventories of material and plant assets held for long-term use.

### **Goodwill:**

Goodwill frequently is recognized in purchase-type business combinations because the total cost of the combinee exceeds the current fair value of identifiable net assets of the combinee.

#### **Negative Goodwill:**

In some purchase-type business combinations (known as *bargain purchases*), the current fair values assigned to the identifiable net assets acquired exceed the total cost of the combinee. A bargain purchase is most likely to occur for a combinee with a history of losses or when common stock prices are extremely low. The excess of the current fair values over total cost is applied pro rata to reduce (but not below zero) the amounts initially assigned to noncurrent assets other than long-term investments in marketable securities. If the foregoing proration does not extinguish the *bargain-purchase excess*, a deferred credit, sometimes termed *negative goodwill*, is established. Negative goodwill means an excess of current fair value of the combinee's identifiable net assets over their cost to the combiner. It is amortized over the period benefited, not to exceed 40 years."

### Illustration of Purchase Accounting for Statutory Merger, with Goodwill

On December 31, 2003, Moon Company (the combinee) was merged into Sound Corporation (the combiner or survivor). Both companies used the same accounting principles for assets, liabilities, revenue, and expenses and both had a December 31 fiscal year. Sound issued 150,000 shares of its L.E.10 par common stock (current fair value L.E.25 a share) to Moon's stockholders for all 100,000 issued and outstanding shares of Moon's no-par, L.E.10 stated value common stock. In addition, Sound paid the following out-of-pocket costs associated with the business combination:

#### Accounting fees:

For investigation of Moon Company as prospective combinee	L.E. 5,000
---	---------------

For SEC registration statement for Sound common stock	60,000
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#### Legal fees:

For the business combination	10,000
------------------------------	--------

For SEC registration statement for Sound common stock	50,000
---	--------

Finder's fee	51,250
--------------	--------

Printer's charges for printing securities and SEC registration statement	23,000
--	--------



## Chapter Three

SEC registration statement fee	750
Total out-of-pocket costs of business combination	<u>L.E. 200,00</u>

There was no contingent consideration in the merger contract.

Immediately prior to the merger, Moon Company's condensed balance sheet was as follows:

**MOON COMPANY (combinee)**

**Balance Sheet (prior to business combination)**

**December 31, 2003**

Current assets	L.E. 1,000,000
Plant assets (net)	3,000,000
Other assets	600,000
Total assets	<u>L.E. 4,600,000</u>

**Liabilities & Stockholders' Equity**

Current liabilities	L.E. 500,000
Long-term debt	1,000,000
Common stock, no-par, L.E. 10 stated value	1,000,000



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*Business Combinations*

Additional paid-in capital	700,000
Retained earnings	1,400,000
Total liabilities & stockholders' equity	<u>L.E. 4,600,000</u>
	<u>0</u>

Using the guidelines in *APB Opinion No. 16*, "Business Combinations", and the board of directors of Sound Corporation determined the current fair values of Moon Company's identifiable assets and liabilities (identifiable net assets) as follows:

Current assets	L.E. 1,150,000
Plant assets	3,400,000
Other assets	600,000
Current liabilities	(500,000)
Long-term debt (present value)	(950,000)
Identifiable net assets of combinee	L.E. 3,700,000

The condensed journal entries that follow are required for Sound Corporation (the combiner) to record the merger with Moon Company on December 31, 2003, as a purchase-type business combination. Sound uses an investment ledger account to accumulate the total cost of Moon Company prior to assigning the cost to identifiable net assets and goodwill.

**SOUND CORPORATION (combinor)****Journal Entries****December 31, 2003**

	Dr.	Cr.
Investment in Moon Company	3,750,000	
Common Stock (150,000 X L.E.25)		
Common Stock (150,000 X L.E.10)		1,500,000
Paid -in Capital in Excess of Par		2,250,000
Investment in Moon Company		
Common Stock	66,250	
(L.E.5,000 + L.E.10,000 + L.E.51,250)		
Paid-in Capital in Excess of Par	133,750	
(L.E.60,000 + L.E.50,000 + L.E.23,000 + 750)		
Cash		200,000
(To record payment of out-of-pocket costs incurred in merger with Moon Company. Accounting, legal, and finder's fees in connection with the merger are recognized as an investment cost; other out-of-pocket costs are recorded as a reduction in the proceeds received from issuance of common stock).		
Current Assets	1,150,000	
Plant Assets	3,400,000	
Other Assets	600,000	

**SOUND CORPORATION (combiner)****Journal Entries (concluded)****December 31, 2003**

Discount on Long-Term Debt	50,000
Goodwill	116,250
Current Liabilities	
Long-Term Debt	50,000
Investment in Moon Company Common Stock	1,000,000
(L.E. 3,750,000 + L.E. 66,250)	3,816,250

(To allocate total cost of liquidated Moon Company to identifiable assets and liabilities, with the remainder to goodwill. Amount of goodwill is computed as follows:

Total cost of Moon Company (L.E. 3,750,000 + L.E. 66,250)	L.E. 3,816,250
Less: Carrying amount of Moon's identifiable net assets (L.E. 4,600,000 - L.E. 1,500,000)	

L.E. 3,100,000

Excess (deficiency) of  
current fair values of  
identifiable net assets  
over carrying amounts:

Current assets

150,000

Plant assets

400,000

Long-term debt

50,000

3,700,000

Amount of goodwill

L.E. 116,250

Note that no adjustments are made in the foregoing journal entries to reflect the current fair values of Sound's identifiable net assets or goodwill, *because Sound is the combiner in the business combination.*

Moon Company (the combinee) prepares the condensed journal entry below to record the dissolution and liquidation of the company on December 31, 2003.

### MOON COMPANY (combinee)

#### Journal Entry

December 31, 2003

Current Liabilities	500,000	
Long-Term Debt	1,000,000	
Common Stock, L.E. 10 stated value	1,000,000	
Paid-in Capital in Excess of Stated Value	700,000	
Retained Earnings	1,400,000	
Current Assets		1,000,000
Plant Assets (net)		3,000,000
Other Assets		600,000
To record liquidation of company in conjunction with merger with Sound Corporation.		

#### Illustration of Purchase Accounting for Acquisition of Net Assets, with Bargain-Purchase Excess

On December 31, 2003, Tamr Corporation acquired the net assets of Fahmy Corporation directly from Fahmy for

L.E.400,000 cash, in a purchase-type business combination. Tamer paid legal fees of L.E.40,000 in connection with the combination.

The condensed balance sheet of Fahmy prior to the business combination, with related current fair value data, is presented below:

**FAHMY CORPORATION (combinee)**  
**Balance Sheet (prior to business combination)**  
**December 31, 2003**

	<i>Carrying Amounts</i>	<i>Current Fair Values</i>
<b>Assets:</b>		
Current assets	L.E. 190,000	L.E. 200,000
Investment in marketable debt securities (held to maturity)	50,000	60,000
Plant assets (net)	870,000	900,000
Intangible assets (net)	90,000	100,000
<b>Total assets</b>	<u>L.E. 1,200,000</u>	<u>L.E. 1,260,000</u>
<b>Liabilities and Stockholders' Equity</b>		
Current liabilities	L.E. 240,000	L.E. 240,000
Long-term debt	500,000	520,000
<b>Total liabilities</b>	<u>L.E. 740,000</u>	<u>L.E. 760,000</u>
Common stock, L.E. 1 par	L.E. 600,000	
Deficit	(140,000)	
<b>Total stockholders' equity</b>	L.E. 460,000	
<b>Total liabilities &amp; stockholders' equity</b>	<u>L.E. 1,200,000</u>	



Thus, Tamr acquired identifiable net assets with a current fair value of L.E.500,000 (L.E.1,260,000 - L.E.760,000 = L.E.500,000) for a total cost of L.E.440,000 (L.E.400,000 + L.E.40,000 = L.E.440,000). The L.E.60,000 excess of current fair value of the net assets over their cost to Tamr (L.E.500,000 - L.E.440,000 = L.E.60,000) is prorated to the plant assets and intangible assets in the ratio of their respective current fair values, as follows:

To plant assets: L.E.60,000 ×	$\frac{\$900.000}{\$900.000 + \$100.0000}$	L.E.54,000
To intangible assets: L.E.60,000 ×	$\frac{\$100.000}{\$900.000 + \$100.0000}$	6,000
Total excess of current fair value of identifiable net assets over combiner's cost		<u>L.E.60,000</u>

No part of the L.E.60,000 bargain-purchase excess is allocated to current assets or to the investment in marketable securities.

The journal entries below and on the next page record Tamr Corporation's acquisition of the net assets of Fahmy Corporation and payment of L.E.40,000 legal fees:

**TAMR CORPORATION (combinor)****Journal Entries****December 31, 2003**

Investment in Net Assets of Fahmy Corporation 400,000

Cash 400,000

(To record acquisition of net assets of Fa  
Corporation).

Investment in Net Assets of Fahmy Corporation 40,000

Cash 40,000

(To record payment of legal fees incurred in  
acquisition of net assets of Fahmy  
Corporation).

**TAMR CORPORATION (combinor)**  
**Journal Entries (concluded)**  
**December 31, 2003**

Current Assets Investments in Marketable	200,000
Debt Securities	60,000
Plant Assets (L.E. 900,000 - L.E. 54,000)	846,000
Intangible Assets (L.E. 100,000 - L.E. 6,000)	94,000
Current Liabilities	240,000
Long-Term Debt	500,000
Premium on Long-Term Debt (L.E. 520,000 - L.E. 500,000)	20,000
	440,000
Investment in Net Assets of Fahmy Corporation	
(L.E. 400,000 + L.E. 40,000)	

(To allocate total cost of net assets identifiable net assets, with excess of curr of the net assets over their cost prorated assets other than investments in mar securities).

## **Independence of Constituent Companies**

On the dates of initiation and consummation of a business combination, no constituent company may have more than a 10% ownership of the outstanding voting common stock of another constituent company. Otherwise, the companies could not be considered independent of each other, because ownership of more than 10% of an investee's common stock often enables the investor to have some degree of influence over the investee.

## **Substantially All Voting Common Stock**

This condition requires that at least 90% of the combinee's outstanding voting common stock be exchanged for the issuer's voting common stock. The following are *excluded* from the computation of the number of shares exchanged:

1. Shares acquired before the date the business combination is initiated and held by either the issuer or its subsidiaries on that date.
2. Shares acquired by either the issuer or its subsidiaries after the combination is initiated, other than in exchange for the issuer's voting common stock.
3. Shares of the combinee still outstanding on the date

the combination is consummated.

In addition, any voting common stock of the issuer owned or acquired by the combinee before the business combination must be considered. These issuer shares are converted to equivalent shares of the combinee for the 90% test.

To illustrate the application of the "independence" and "90% of voting common stock" tests, assume that on March 13, 2003, Patton Corporation and Sherman Company initiated a plan of business combination. Under the plan, 1 1/2 shares of Patton's voting common stock (1,000,000 shares issued and outstanding prior to March 13, 2003) were to be exchanged for each outstanding share of Sherman's common stock (100,000 shares issued and 99,500 shares outstanding prior to March 13, 2003).

At this time, Patton owned 7,500 shares of Sherman's common stock, and Sherman owned 6,000 shares of Patton's voting common stock; in addition, 500 shares of Sherman's common stock were in Sherman's treasury. Neither Patton's ownership of 7.54% of Sherman's outstanding common stock ( $7,500 \div 99,500 = 7.54\%$ ) nor Sherman's ownership of 0.6% of Patton's outstanding common stock ( $6,000 \div 1,000,000 = 0.6\%$ ) exceeds the 10% limitation of the *independence of constituent companies requirement*. On March 26, 2003,



Patton acquired in the open market for cash 1,000 shares (1.005%) of Sherman's outstanding common stock; and on June 30, 2003, Patton issued 136,500 shares of its voting common stock in exchange for 91,000 outstanding shares of Sherman's common stock to complete the business combination.

Computation of the 90% requirement follows:

Total Sherman Company shares issued, June 30, 2003	100,000
Less: Shares in Sherman's treasury	500
Total Sherman shares outstanding, June 30, 2003	99,500
Less:	
Sherman shares owned by Patton Corporation, Mar. 13, 2003	7,500
Sherman shares acquired by Patton for cash, Mar. 26, 2003	1,000
Equivalent number of Sherman shares represented by Patton's common stock owned by Sherman, Mar. 13, 2003	
(6,000 - 11/2)	4,000
Effective number of Sherman shares acquired June 30, 2003,	12,500
in exchange for Patton's common stock	87,000
Application of 90% requirement (99,500 X 90%)	89,550

Thus, the 91,000 shares of Sherman Company common stock actually exchanged on June 30, 2003, are in effect restated to 87,000 shares. Because the restated amount is less than 90% of Sherman's 99,500 shares outstanding, the business combination *does not qualify for pooling accounting*.

### **Financial Statements Following a Business Combination**

Under both purchase accounting and pooling accounting, the balance sheet for a combined enterprise issued as of the date of a business combination accomplished through a statutory merger, statutory consolidation, or acquisition of assets includes all the assets and liabilities of the constituent companies. In a balance sheet following a purchase-type business combination, assets and liabilities of the combiner are at *carrying amount*, assets acquired from the combinee are at *current fair value* (adjusted for any bargain-purchase excess), and *retained earnings is that of the combiner only*. In a balance sheet following a pooling-type business combination, assets and liabilities of all constituent companies are at *carrying amount*, and *retained earnings is the total for all constituent companies*.

The form of the combined enterprise's income statement for the accounting period in which a business combination is completed depends on whether purchase accounting or pooling

accounting is used to record the combination.

***Under Purchase Method:***

The income statement of the combined enterprise for the accounting period in which a purchase-type business combination occurred includes the operating results of the combinee *after the date of the combination only*. For example, under purchase accounting, Sound Corporation's postmerger income statement for the year ended December 31, 2003, would be identical to Sound's premerger income statement shown on page 193, except that net income would be L.E.700,000 and operating expenses would be L.E.1,683,333. (The L.E.200,000 out-of-pocket costs of the business combination are not recognized as expenses in purchase accounting; L.E.66,250 is part of the total cost to Sound of Moon's net assets, and L.E.133,750 is a reduction in Sound's paid-in capital in excess of par.)

***Under Purchase Method:***

The Accounting Principles Board required disclosure of the following aspects of a purchase-type business combination in a note to the financial statements for the period in which the business combination took place: name and brief description of the combinee; period for which combinee's operating results are included in the income statement of the combined enterprise; cost of the combinee, including number of shares

and value per share of common stock issued, and nature of and accounting treatment for contingent consideration; amortization policy for goodwill recorded in the combination; and pro forma operating results for the combined enterprise for the current and preceding accounting periods as though the combination had occurred at the beginning of the preceding period. Subsequently, the Financial Accounting Standards Board waived the pro forma disclosures for nonpublic enterprises whose debt and equity securities are not publicly traded.<sup>18</sup>

The following note to the financial statements of The Ain-Shams Companies, Inc., a publicly owned company, illustrates the required disclosures for a purchase-type business combination:

On October 15, 2004, The Ain-Shams Companies completed the exchange of its Shepard's/ Ain-Shams legal publishing unit for the Times Mirror Higher Education Group (TMHE) and other consideration, including L.E.34 million in cash. The valuation of the properties exchanged was L.E.485 million. The acquisition of TMHE was accounted for as a purchase and the net assets and results of operations of TMHE have been included in the consolidated financial statements since the date of acquisition.



The excess of the transaction value over the tangible assets acquired was allocated to identifiable publishing intangible assets (L.E.231 million) being amortized over 18 to 30 years and goodwill (L.E.168 million) being amortized over 40 years.

The company recorded a pretax gain on the sale of Shepard's/Ain-Shams of L.E.418.7 million (L.E.260.5 million net of taxes, or L.E.2.61 per diluted share).

In connection with the acquisition of TMHE, the company recorded acquisition reserves of L.E.26.6 million. Such costs were primarily for employee severance as well as professional fees and various other costs associated with the acquisition. In addition, one-time charges of L.E.25 million related to the integration of the company's College Division with the acquired TMHE business were recorded in 2004. Such costs were attributed to employee severance, asset write-offs and other costs to integrate and consolidate the operations.

The following unaudited pro forma information presents the consolidated results of operations of the company for 2004 as if the exchange of businesses had occurred at the beginning of 2004. Pro forma



results for 2004 are: operating revenue of L.E.3.2 billion, net income of L.E.225 million and diluted earnings per common share of L.E.2.25.

These pro forma results are not necessarily indicative of those that would have occurred had the exchange of businesses taken place at the beginning of 2004.

### ***Other Topics in Accounting for Business Combinations***

#### **Purchase-Type Statutory Consolidation**

Because a new corporation issues common stock to effect a statutory consolidation, one of the constituent companies in a purchase-type statutory consolidation must be identified as the combiner, under the criteria described before. Once the combiner has been identified, the new corporation recognizes net assets acquired from the combiner at their *carrying amount* in the combiner's accounting records; however, net assets acquired from the combinee are recognized by the new corporation at their *current fair value*.

To illustrate, assume the following balance sheets of the constituent companies involved in a purchase-type statutory consolidation on December 31, 2003:

**LAMSON CORPORATION AND DONALD COMPANY**

Separate Balance Sheets (prior to business combination)

December 31, 2003

	<i>Lamson Corporation</i>	<i>Donald Company</i>
<b>Assets</b>		
Current assets	L.E. 600,000	L.E. 400,000
Plant assets (net)	1,800,000	1,200,000
Other assets	400,000	300,000
Total assets	<u>L.E. 2,800,000</u>	<u>L.E. 1,900,000</u>
<b>Liabilities &amp; Stockholders' Equity</b>		
Current liabilities	L.E. 400,000	L.E. 300,000
Long-term debt	500,000	200,000
Common stock, L.E. 10 par	430,000	620,000
Additional paid-in capital	300,000	400,000
Retained earnings	1,170,000	380,000
Total liabilities & stockholders' equity	<u>L.E. 2,800,000</u>	<u>L.E. 1,900,000</u>

The current fair values of both companies' liabilities were equal to carrying amounts. Current fair values of identifiable assets were as follows for Lamson and Donald, respectively: current assets, L.E. 800,000 and L.E. 500,000; plant assets, L.E. 2,000,000 and L.E. 1,400,000; other assets, L.E. 500,000 and L.E. 400,000.

On December 31, 2003, in a statutory consolidation approved by shareholders of both constituent companies, a new corporation, LamDon Corporation, issued 74,000 shares of no-par, no-stated-value common stock with an agreed value of L.E. 60 a share, based on the following valuations assigned by the negotiating directors to the two constituent companies'

identifiable net assets and goodwill:

	<i>Lamson Corporation</i>	<i>Donald Company</i>
Current fair value of identifiable net assets:		
Lamson: L.E.800,000 + L.E.2,000,000 + L.E.500,000 - L.E.400,000 - L.E.500,000	L.E.2,400,000	
Donald: L.E.500,000 + L.E.1,400,000 + L.E.400,000 - L.E.300,000 - L.E.200,000		L.E.1,800,000
Goodwill	180,000	60,000
Net assets' current fair value	L.E.2,580,000	L.E.1,860,000
Number of shares of LamDon common stock to be issued to constituent companies' stockholders, at L.E.60 a share agreed value	43,000	31,000

Because the former stockholders of Lamson Corporation receive the larger interest in the common stock of LamDon Corporation C<sup>"/^</sup>, or 58%), Lamson is the combiner in the purchase-type business combination. Assuming that LamDon paid L.E.200,000 out-of-pocket costs of the statutory consolidation after it was consummated on December 31, 2003, LamDon's journal entries would be as follows:

**LAMDON CORPORATION****Journal Entries December 31, 2003**

Investment in Lamson Corporation and Donald Company Common Stock (74,000 X L.E.60), Common Stock, no par (To record consolidation of Lamson Corporation and Donald Company as a purchase).	4,440,000	4,400,000
Investment in Lamson Corporation and Donald Company Common Stock Common Stock, no par Cash (To record payment of costs incurred in consolidation of Lamson Corporation and Donald Company. Accounting, legal, and finder's fees in connection with the consolidation are recorded as investment cost; other out- of-pocket costs are recorded as a reduction in the proceeds received from the issuance of common stock).	110,000 90,000	200,000
Current Assets (L.E.600,000 + L.E.500,000)	1,100,000	
Plant Assets (L.E.1,800,000 + L.E.1,400,000)	3,200,000	
Other Assets (L.E.400,000 + L.E.400,000)	800,000	

## LAMDON CORPORATION

## Journal Entries (concluded)

December 31, 2003

Goodwill	850,000	
Current Liabilities (L.E.400,000 + L.E.300,000)		700,000
Long-Term Debt (L.E.500,000 + L.E.200,000)		700,000
Investment in Lamson Corporation and Donald Company		4,550,000
Common Stock (L.E.4,440,000 + L.E.110,000)		

(To allocate total cost of investment to identifiable assets and liabilities, at carrying amount for combiner Lamson Corporation's net assets and at current fair value for combinee Donald Company's net assets). (Income tax effects are disregarded.)

Amount of goodwill is computed as follows:

Total cost of investment

(L.E.4,440,000 + L.E.110,000)

L.E.

Less: Carrying amount of  
Lamson's identifiable net  
assets

4,550,000

(1,900,000)

Current fair value of Donald's  
identifiable net assets

(1,800,000)

Amount of goodwill

L.E. 850,000



Note in the foregoing journal entry that because of the combiner's net assets' being recognized at carrying amount and because of the L.E.110,000 direct out-of-pocket costs of the business combination, the amount of goodwill is L.E.850,000, rather than L.E.240,000 ( $\text{L.E.180,000} + \text{L.E.60,000} = \text{L.E.240,000}$ ), the amount assigned by the negotiating directors to goodwill in the determination of the number of shares of common stock to be issued in the combination.

 pdfelement

### المصطلحات الواردة في الفصل الثالث

Business combinations:	انضمام المشروعات
Common control:	الرقابة الشائعة (الشاملة)
Merger :	الاندماج
Acquisition:	الاستحواذ بالشراء
Combined enterprise:	مشروع تم ضمه
Constituent companies:	الشركات التي تشكل الاندماج
Combiner:	المالك الذي يقوم بضم شركات
Combinee:	الشركة التي يمكن السيطرة عليها عن طريق مالك جديد
Purchase accounting method:	طريقة المحاسبة بالشراء
Pooling-of-interests accounting method:	طريقة المحاسبة بتجميع أصحاب المصالح
Antitrust Considerations:	اعتبارات منع الاحتكار
Obstacle:	عائق
Statutory merger:	الوضع القانوني للاندماج
Statutory consolidation:	الوضع القانوني للتوحيد
Acquisition of common stock:	استحواذ الأسهم العادية
Acquisition of assets:	استحواذ الأصول
Tender offer:	Legal عرض مناقصة
fees:	أتعاب قانونية
Accounting fees:	أتعاب محاسبية
Finder's fees:	Out- أتعاب السمسرة
of-pocket costs:	تكاليف مدفوعة من المشتري لمشروع

**Exercises and Problems:**

**E-1:** The balance sheet of Mero Company on January 31, 2004, showed current assets, L.E.100,000; other assets, L.E.800,000; current liabilities, L.E.80,000; long-term debt, L.E.240,000; common stock (10,000 shares, L.E.10 par), L.E.100,000; and retained earnings, L.E.480,000. On that date, Mero merged with Samero Corporation in a business combination in which Samero issued 35,000 shares of its L.E.1 par (current fair value L.E.20 a share) common stock to stockholders of Mero in exchange for all their outstanding common stock. The current fair values of Mero's liabilities were equal to their carrying amounts; the current fair values of Mero's current assets and other assets were L.E.120,000 and L.E.850,000, respectively, on January 31, 2004. Also on that date, Samero paid direct out-of-pocket costs of the business combination, L.E.40,000, and costs of registering and issuing its common stock, L.E.70,000.

**Instructions:**

Prepare journal entries for Samero Corporation to record its merger with Mero Company as a purchase.

**E-2:** The condensed balance sheet of XYZ Company on March 31, 2004, is shown below:

**XYZ COMPANY****Balance Sheet (prior to business combination)****March 31, 2004****Assets**

Cash	L.E. 20,000
Other current assets	140,000
Plant assets (net)	740,000
Total assets	<u>L.E. 900,000</u>

**Liabilities & Stockholders' Equity**

Current liabilities	L.E. 80,000
Long-term debt	200,000
Common stock, L.E. 2 par	180,000
Additional paid-in capital	120,000
Retained earnings	320,000
Total liabilities & stockholders' equity	<u>L.E. 900,000</u>

*Business Combinations*

On March 31, 2004, Master Corporation paid L.E. 700,000 cash for all the net assets of XYZ (except cash) in a purchase-type business combination. The carrying amounts of XYZ's other current assets and current liabilities were the same as their current fair values. However, current fair values of XYZ's plant assets and long-term debt were L.E. 920,000 and L.E. 190,000, respectively. Also on March 31, Master paid the following out-of-pocket costs for the business combination with XYZ:

Legal fees	L.E. 10,000
Finder's fee	70,000
CPA firm's fee for audit of XYZ Company's March 31, 2004, financial statements	20,000
Total out-of-pocket costs of business combination	<u>10,000</u>

**Instructions:**

Prepare a working paper to compute the amount of goodwill or bargain-purchase excess in the business combination of Master Corporation and XYZ Company on March 31, 2004. (Disregard income taxes.)

**E-3:** The balance sheet of Combinee Company on January 31, 2004, was as follows:



**COMBINEE COMPANY****Balance Sheet (prior to business combination)****January 31, 2004**

<b>Assets</b>		<b>Liabilities &amp; Stockholders' Equity</b>	
Current assets	L.E. 300,000	Current liabilities	
L.E. 200,000			
Plant assets	600,000	Long-term debt	
300,000			
Other assets	<u>100,000</u>	Common stock, no	
par or stated value	100,000		
Retained earnings	<u>400,000</u>		
	Total liabilities &		
<b>Total assets</b>	<b>L.E. 1,000,000</b>	<b>stockholders' equity</b>	
<u>L.E. 1,000,000</u>			

On January 31, 2004, Combiner Company issued L.E. 700,000 face amount of 6%, 20-year bonds due January 31, 2024, with a present value of L.E. 625,257 at a 7% yield, to Combinee Company for its net assets. On January 31, 2004, the current fair values of Combinee's liabilities equaled their carrying amounts; however, current fair values of combinee's assets were as follows:

Current assets      L.E. 320,000

Plant assets	680,000
Other assets	120,000

Also on January 31, 2004, Combiner paid out-of-pocket costs of the combination as follows:

Accounting, legal, and finder's fees incurred for combination  
L.E. 80,000

Costs of registering 6% bonds with SEC	<u>110,000</u>
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Total out-of-pocket costs	L.E. 190,000
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**Instructions:**

Prepare journal entries (omit explanations) for Combiner Company to record its acquisition of the net assets of Combinee Company.

**P-1:** On March 31, 2004, Combiner Company issued 100,000 shares of its L.E.1 par common stock (current fair value L.E.5 a share) for the net assets of Combinee

Company. Also on that date, Combiner paid the following out-of-pocket costs in connection with the combination:

Finder's, accounting, and legal fees relating to business combination L.E. 70,000.

Costs associated with SEC registration statement L.E. 50,000

The balance sheet of Combinee on March 31, 2004, with related current fair values, was as follows:

**COMBINEE COMPANY****Balance Sheet (prior to business combination)****March 31, 2004**

	Carrying Amounts	Current Fair Values
<b>Assets</b>		L.E.260,000
Current assets	L.E.200,000	L.E.260,000
Plant assets (net)	400,000	480,000
Other assets	140,000	150,000
<b>Total assets</b>	<b>L.E.740,000</b>	
<b>Liabilities &amp; Stockholders' Equity</b>		
Current liabilities	L.E. 80,000	L.E. 80,000
Long-term debt	260,000	260,000
Common stock, no par or stated value	150,000	
Retained earnings	250,000	
<b>Total liabilities &amp; stockholders' equity</b>	<b>L.E.740,000</b>	

**Instructions:**

Prepare journal entries for Combiner Company on March 31, 2004, to record the business combination with Combinee Company as a purchase.

**P-2:** On September 26, 2004, Acquirer Corporation paid L.E. 160,000 cash to Disposer Company for all its net assets except cash, and L.E. 10,000 direct out-of-pocket costs of the purchase-type business combination. There was no contingent consideration.

Current fair values of Disposer's identifiable net assets on September 26, 2004, were as follows:

**Current Fair Values**

Cash	L.E. 10,000
Other current assets	120,000
Plant assets	150,000
Intangible assets	50,000
Current liabilities	90,000
Long-term debt (face amount L.E. 60,000)	50,000

**Instructions:**

Prepare journal entries (omit explanations) for Acquirer Corporation on September 26, 2004, to record the purchase-type business combination.





## Chapter Four

# JOB ORDER COSTING SYSTEM

After studying Chapter 4, you will be able to:

- ▣ Identify the circumstances in which a job order costing system is used.
- ▣ Describe how direct materials, direct labor, and factory overhead are costed to products in job order costing.
- ▣ Calculate factory overhead rates.
- ▣ Identify the principal differences between various concepts of plant capacity.
- ▣ Explain why services or products should be costed by using an overhead rate computed at normal operating capacity.
- ▣ Show how a comparison between the actual and estimated costs can aid management in cost control.

## Chapter Four

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In addition to knowing how costs can be used for planning, control, and decision making, management also needs to know the costs of providing a single unit of a product or service, or the costs of undertaking a certain project. Determining the cost of a service rendered or a product manufactured has a major impact on the measurement of net income and on the inventory valuation for the balance sheet. Product or service costs can also be applied, at least to some extent, in planning and control.

The manager of a production function, for example, may estimate the cost to manufacture a specified quantity of product. In some cases, the manager will control the costs as the job moves towards completion. In other situations, it may not be possible to exercise control on a project or production order basis because of the nature of the manufacturing operation.

The principles underlying cost accounting are applied not only for manufacturing companies, but also for wholesalers, retailers, and service organizations. One difference is that a nonmanufacturing company may not incorporate the costs of specific customer orders in the general accounting system, instead, a separate accounting of those

costs may be prepared for information purposes. For example, a hospital will make an analysis showing the cost to render a given type of medical treatment or the cost of outpatient care. This cost analysis may or may not be shown in the general accounting system. A contractor, on the other hand, will accumulate costs in the general accounting records by project. If a new bridge is being constructed for the state, for example, the contractor will identify the costs for the bridge project.

In a not-for-profit organization, the cost of manufacturing a product line or the cost to operate a department may not be relevant. The cost objective of a university may be the estimation, measurement, and control of the cost of a program to educate better mathematics teachers. Or a museum may want to determine the cost of having a particular exhibit for a season, in any situation, there will be direct costs that can be readily identified with the objective, and indirect costs that must be allocated using some reasonable basis for allocation. The principles used in accounting for the costs of a manufacturer can often be adapted for a wide variety of applications.

Manufacturing costs are accumulated and assigned to products through the use of one of two basic cost accounting systems:

1. The job order cost system.
2. The process cost system.

This chapter will concentrate on the job order cost system, and process cost accounting will be covered in Chapter 4.

### THE JOB ORDER COST SYSTEM

The job order cost system is used when products are manufactured in identifiable lots or groups or when products are manufactured according to customer specifications. A printer, for example, may receive an order to print 5,000 copies of a summer school bulletin. This bulletin is prepared as directed by the school, and it differs in form and content from the printing work done for other customers. The printer's cost is accumulated by customer order. Manufacturers and contractors, like the printer, may work on a project or order basis and identify cost by project or order.

In a job order cost system, the production cost of each job is accumulated separately on a form referred to as a job or production order. Each order is usually divided into three basic sections—materials, labor, and overhead thus, the three cost elements are accounted for separately. An additional section is usually provided in which a summary of each of the cost element; is shown and a unit cost is determined. This section is completed when the job is finished. The file of production orders in process constitutes a subsidiary ledger in support of the work in process account in the general ledger. A production order is shown at the top of the following page.

#### **COSTING DIRECT MATERIALS AND DIRECT LABOP**

Direct materials and direct labor are the materials and labor that can be identified with the products without allocation. These costs are measured and assigned directly to the production orders.

When materials are purchased on account for L.E.75,000, an entry is made to debit Materials and to credit Accounts Payable as follows:



## Chapter Four

Materials ----- 75,000  
 Accounts Payable ----- 75,000  
 Purchase of materials to be used in production.

As direct materials are used in production, requisition tickets are prepared to show the type of material and the cost of the material withdrawn for use on specific job orders. Assume that the requisition tickets for a week show that direct materials costing L.E.60,000 have been transferred from the materials inventory to production.

## PRODUCTION ORDER

Customer -----			Job Order -----		
Description -----			Date Started -----		
Quantity -----			Date Completed -----		

Materials			Labor			Overhead	
Date	Code	Amount	Date	Code	Amount		
						Direct Labor Hours	-----
						Overhead Rate	-----
						Applied Overhead	-----
						Summary	
						Direct Materials	
						Direct Labor	
						Factory Overhead	-----
						<b>Total Cost</b>	=====
						<b>Unit Cost</b>	=====

**Figure 3.1** A Production Order

Each ticket is a basis for the reduction of the specific type of material in the materials subsidiary records, and the total of L.E.60,000 is recorded as a credit to Materials — the control account of materials inventory. The work in process account is a focal account for the entry of the costs of production. The costs of the three cost elements—direct materials, direct labor, and factory overhead—are funneled through this account. Thus, each ticket also becomes the basis for charging materials used to specific job orders, and the total of L.E.60,000 is debited to the control account, Work in Process. The journal entry to cost materials used in production for the week is given as follows.

Work in Process-----	60,000
Materials-----	60,000
Direct materials requisitioned for production.	

Factory payroll is recorded by a debit to Payroll with offsetting credit. Employees Income Tax Payable, other liability accounts for payroll deductions, and Wages Payable as follows.

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Payroll -----	100,000
Employees Income Tax Payable-----	18,000
FICA Tax Payable -----	7,000
Union Dues Payable-----	1,000
Wages Payable -----	74,000

To record factory payroll for the month.

In this example, for the sake of simplicity, it has been assumed that all labor is direct labor. In practice, there will be some idle time and set-up time for production workers. Hence, a portion of the payroll, even a payroll for only production workers, will consist of pay for some hours that cannot be charged to any production order. This cost will be a part of factory overhead, along with the cost of hospitalization, sick pay, or other benefits that cannot be identified with orders of production.

Labor time tickets or labor time reports will show how much of the labor time and cost is to be charged to each job order underlying work in process. In this example, the payroll cost represents 10,000 direct labor hours at L.E. each. The work in process control account will be debited for a total of 10,000 direct labor hours at L.E. 10 each, or for L.E. 100,000.

Work in Process-----	100,000
Payroll -----	100,000
Direct labor costed to production.	

Production supervisors, in planning their operations, may estimate the direct materials and direct labor cost for each of the orders for which they are responsible. They subsequently measure the actual cost and compare it with the estimates, taking into account the stage of completion for each order. For example, a report on production may be prepared as follows.

### Direct Materials

Order Number	Estimate	Actual	Dollar Variance Over (Under)	Percentage of Completion
1017	L.E.22,000	L.E.21,000	L.E.(1,000)	100%
1018	19,500	20,000	500	100
*1019	10,000	14,000	4,000	50
*1020	5,000	5,000	-0-	25
Total	<u>L.E.56,500</u>	<u>L.E.60,000</u>	<u>L.E.3,500</u>	

\* Estimates adjusted to percentage of completion basis.

The variance column shows the differences between estimated and actual amounts. The total estimates for each order have been adjusted by the percentage completed so that a valid comparison can be made with the actual amounts. The total direct materials cost of Order #1019 was estimated to be L.E.20,000. The order is 50 percent complete as to direct materials. Hence, the estimated cost at 50 percent is L.E.10,000 (50% of L.E.20,000).

A report that compares actual direct labor hours with the estimated hours can reveal whether or not more hours are being used on an order than expected. Again, the estimates are made comparable with the actual results by determining the percentage of work completed and applying that percentage to the total estimate. For example, Order #1020 is only 10 percent complete with respect to direct labor. The total estimate on that order for direct labor hours must have been 4,500 hours if 450 hours is 10 percent of the total estimate.



## Direct Labor Hours

Order			Direct Labor Hour Variance	Percentage of
<u>Number</u>	<u>Estimate</u>	<u>Actual</u>	<u>Over (Under)</u>	<u>Completion</u>
1017	4,450	4,000	(450)	80%
1018	1,800	2,000	200	50
1019	3,300	3,500	200	50
1020	450	500	50	10
Total	<u>10,000</u>	<u>10,000</u>	<u>-0-</u>	

\* Estimates adjusted to percentage of completion basis.

The report on direct labor hours can be converted to a direct labor cost report by multiplying the direct labor hours by the direct labor hour rate (in this case, L.E.10), as shown in the following report.

## Direct Labor Cost

Order			Direct Labor Hour Variance	Percentage of
<u>Number*</u>	<u>Estimate</u>	<u>Actual</u>	<u>Over (Under)</u>	<u>Completion</u>
1017	L.E.44,500	L.E.40,000	L.E.(4,500)	80%
1018	18,000	20,000	2,000	50
1019	33,000	35,000	2,000	50
1020	4,500	5,000	500	10
Total	<u>L.E.100,000</u>	<u>L.E.100,000</u>	<u>-0-</u>	

\* Estimates adjusted to percentage of completion basis.

Supervisors are able to use such cost information as they follow each order from its inception to completion. As a cost overrun (unfavorable variation from estimate) develops, they can take corrective measures. The preceding example shows that Order Number 1019 is 50 percent completed with respect to both direct materials and direct labor, and that more materials and more hours were used than anticipated. Knowing what caused the overrun may enable the supervisor to find ways to reduce cost. Or, it may be found that the estimate was unrealistically low; in this case, budgets are revised.

## **COST OF PROVIDING SERVICES**

An entity that provides services instead of tangible products may r operate with a formal cost accounting system, but will nevertheless measure performance by class of service and by customer groups. A hotel, for example, may provide an exercise room for some of its patrons. The cost of supplies used exclusively for the exercise room, such as rubbing lotions a bandages, along with the salaries and wages of the room's employees, such the manager and exercise class instructors, are identified with the exercise function. Also, a portion of the cost of special equipment used (depreciation) and other overhead costs increased by operating this service will be included. These costs can be used as a basis for deciding how much must added to the bill to cover costs and allow for profit. Also, as the service provided, does the amount of customer patronage justify continuance of the service? Can other features be provided at a certain cost to attract more customer attention?

## IBM CUTS COSTS TO STAY COMPETITIVE

What IBMers find especially worrisome is the company's near-freeze on outside hiring, which halts the influx of new blood—and new ideas—so crucial to moving ahead in the high-technology arena. "It's difficult to staff up new projects," complains a software design manager at IBM's Santa Teresa, California lab. A Kingston, New York technical manager, deprived of a budget for personal computers and software, is more stoic: "We just learn how to make do with less."

But even deep cost-cutting is only a temporary measure. It will take a stream of new products to power IBM out of the doldrums. At headquarters, says a longtime IBM consultant, the pressure to come up with them is "intense."

IBM in Europe is also cutting overhead. In France it's pruning wage increases and slowing hiring. And it's shifting people around.

It will take more than new faces to turn the tide. But almost no one is counting IBM out. As a former IBMer puts it:

"They've got some big problems right now. but they'll be back."

## COSTING FACTORY OVERHEAD

Factory overhead, unlike direct materials and direct labor, cannot be requisitioned or measured directly as a cost of any particular production order or service. Factory overhead consists of a variety of costs such as indirect materials, indirect labor, insurance, and taxes, all of which are indirectly related to the products. The indirect nature of overhead costs with respect to the products or services creates a difficulty in cost accounting.

As a practical solution, factory overhead is attached to products or services by means of a factor that can be directly related to the products. This factor serves as a bridge between factory overhead and the products. Often the factor chosen for overhead allocation is direct labor hours, machine hours, or direct labor cost. Factory overhead is budgeted for the year, and the factor selected is also budgeted. The budgeted factor is divided into the budgeted overhead to obtain an overhead rate. Products then are assigned overhead cost by multiplying the actual quantities of the factor by the rate calculated.



As reported in : Gordon Bock, Mark Maremont, and Thane Peterson, "IBM Has Troubles Across the Atlantic, Too," *Business Week* (17 November 1986) : 155-157.

The factor chosen as a basis for overhead allocation should be related logically to both the overhead and the product. If machinery plays an important role in the manufacturing operation, the overhead cost likely consists of power cost, lubrication, maintenance, repairs, depreciation, and other costs closely related to machine operation. The benefits received by the products can probably be best measured against the cost of the machine hours used in their production. Therefore, overhead cost should be allocated to the products on a machine hour basis. For other departments in the plant that are more labor intensive than capital intensive, direct labor cost or direct labor hours may be more appropriate for overhead allocation.

### Computing the Overhead Rate

The calculation of an overhead rate is illustrated by assuming that several factory overhead budgets have been prepared for various levels of operating activity. A series of budgets for various levels of operating activity is called a

flexible budget, as illustrated in the table at the top of the next page.

In this example, the 10,000 budgeted direct labor hours level has been selected as the factor for obtaining a product costing rate. Note that the variable cost is L.E.3 per hour at any level of operation, whereas the fixed rate depends upon the number of direct labor hours used in the computation. The total rate per 10,000 direct labor hours is computed as L.E.8 per hour.

$$\frac{\text{Budgeted factory overhead}}{\text{Budgeted direct labor hours}} = \frac{\text{L.E. 80,000}}{10,000} = \text{L.E.8 per direct labor hour}$$

Budgeted direct labor hours -----	6,000	8,000	10,000	12,000
Budgeted factory overhead :				
Variable :				
Indirect materials -----	L.E.7,500	L.E.10,000	L.E.12,000	L.E.15,000
Repairs and maintenance -----	5,700	7,600	9,500	11,400
Power and light -----	4,800	6,400	8,000	9,600
Total -----	<u>L.E.18,000</u>	<u>L.E.24,000</u>	<u>L.E.30,000</u>	<u>L.E.36,000</u>
Fixed :				
Indirect labor and supervision ---	L.E.18,000	L.E.18,000	L.E.18,000	L.E.18,000
Repairs and maintenance -----	6,500	6,500	6,500	6,500
Power and light -----	5,500	5,500	5,500	5,500
Factory rent -----	8,000	8,000	8,000	8,000
Depreciation of equipment -----	12,000	12,000	12,000	12,000
Total -----	<u>L.E.50,000</u>	<u>L.E.50,000</u>	<u>L.E.50,000</u>	<u>L.E.50,000</u>

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Total budgeted overhead-----	<u>L.E.68,000</u>	<u>L.E.74,000</u>	<u>L.E.80,000</u>	<u>L.E.86</u>
Repairs per direct labor hour:				
Variable-----	L.E.3,000	L.E.3,000	L.E.3,000	L.E.3
Fixed-----	8,333	6,250	5,000	4
Total-----	<u>L.E.11,333</u>	<u>L.E.9,250</u>	<u>L.E.8,000</u>	<u>L.E.7</u>

\* Level Selected for rate to cost the products.

During the year, the products passing through the plant were charged with budgeted factory overhead. Assume that 10,000 hours of direct labor were used during the year. While the manufacturing operation was going on various entries were made to cost the products. In aggregate, it would be as if one summary entry were made as follows.

Work in Process----- 80,000

Applied Factory Overhead----- 80,000

Allocation of factory overhead cost to the orders.

10,000 hours at L.E.8 each.

As each order goes through production, it is charged with a portion of the overhead at the rate of L.E.8 for each direct labor hour charged to the order. The cost shown for Order Number 1018 may now be summarized at this stage of its production as follows.

---

*Job Order Costing System*

Direct materials-----	L.E.20,000
Direct labor (2,000 hours at L.E.10 each)-----	20,000
Factory overhead (2,000 hours at L.E.8 each) ---	<u>16,000</u>
Total cost -----	L.E. <u>56,000</u>

Cost for direct labor and overhead is accumulated for orders until they are completed. At completion, the cost of the orders is transferred out of work in process and into finished goods.

Why does the accountant go to so much trouble in assigning factory overhead cost to the products, instead of waiting until the end of the year when all of the actual factory overhead has been collected, the actual direct labor hours have been determined, an actual overhead rate has been calculated, and actual cost has been allocated to the orders produced that year? Why bother with a budget and a budget rate?

When a budget rate is used, product costs can be determined quickly. There is no need to wait until the end of a month or other fiscal period to determine the cost of making a certain order or batch of product units. The cost is available

while production is in process, thus making it easier to control operations as they occur.

Also, product cost does not fluctuate as it would if actual overhead rates were used in computing monthly cost. Seasonal variations throughout the year would cause the overhead cost per unit to be higher or lower depending upon the volume produced. Interim financial reports might show various unit product cost, total cost, and profit depending upon seasonal operations. These variations can be leveled out by using a budget rate.

### Costing Variable Overhead

In the following example, the total cost originally estimated for a production order was L.E.29,000. Direct labor cost amounts to L.E.10 per hour and variable overhead cost is at the rate of L.E.3 per hour. Fixed overhead will not be assigned to the product in this example. It was estimated that 1,000 direct labor hours would be used to produce this order. However, a careful review of operations, with revisions in the production process, reveals that the order can be completed in 950 direct labor hours.



---

*Job Order Costing System***Original Estimate**1,000 direct labor hours

Direct materials -----	L.E. 16,000
Direct labor (1,000 x L.E.10) -----	10,000
Variable overhead (1,000 x L.E.3) -----	3,000

---

Total ----- L.E. 29,000

**Revised Estimate**950 direct labor hours

Direct materials -----	L.E. 16,000
Direct labor (950 x L.E.10) -----	9,500
Variable overhead (950 x L.E.3) -----	2,850

---

Total ----- L.E. 28,350

By saving 50 hours of direct labor, the company can reduce the cost of this order by L.E.650. Management recognizes that substantial savings in cost are possible by finding ways to reduce labor time or other factors related to variable overhead. One very important function of management is to review operations closely with the objective of reducing production time and cost. Small savings in time can be translated into substantial cost savings when volume of production is considered.

**Costing Fixed Overhead**

Assume now that the full cost of the order is to be computed with an apportioned share of the fixed overhead included. The fixed overhead cannot be controlled by job or project. It is allocated to the orders by the use of an hourly costing rate. The budget for fixed overhead in this example is L.E.50,000, and the company is generally expected to operate

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at 10,000 direct labor hours a year. The fixed overhead rate per direct labor hour is then L.E.5.

$$\frac{\text{L.E.50,000 fixed overhead}}{10,000 \text{ direct labor hours}} = \text{L.E.5,} \quad \text{Fixed overhead rate per direct labor hour}$$

The full cost estimate of the production order is given as follows.

Original Estimate		Revised Estimate	
1,000 direct labor hours		950 direct labor hours	
Direct materials	L.E. 16,000	Direct materials	L.E. 16,000
Direct labor (1,000 x L.E.10)	10,000	Direct labor (950 x L.E.10)	9,500
Variable overhead (1,000 x L.E.3)	3,000	Variable overhead (950 x L.E.3)	2,850
Fixed overhead (1,000 x L.E. 5)	5,000	Fixed overhead (950 x L.E. 5)	4,750
Total	L.E. 34,000	Total	L.E. 33,100

If the company actually operated at 10,000 direct hours during the year, all of the fixed overhead of L.E.50,000 would be apportioned to the orders using a rate of L.E.5 per hour. Suppose, however, that there were only 8,000 hours of operation. Then, only L.E.40,000 of the fixed overhead would be costed to the products by using the fixed overhead rate of L.E.5 an hour that was established for 10,000 hours.

$$8,000 \text{ actual hours} \times \text{L.E.5} \quad \text{Fixed overhead rate} \quad = \text{L.E.40,000 fixed overhead}$$

per direct labor hour                      costed to products

*Job Order Costing System*

Budgeted fixed overhead -----	L.E. 50,000
Fixed overhead costed to products -----	<u>40,000</u>
Capacity variance -----	L.E. <u>10,000</u>

The difference between the budgeted fixed overhead and the fixed overhead costed to products by the use of the predetermined fixed overhead rate is designated as a capacity variance, or volume variance. Capacity variance is discussed further in Chapter 6.

### Disposition of the Overhead Variance

While the products were being costed with budgeted factory overhead, actual overhead costs were being incurred and recorded as debits to Factory overhead. At the end of the year, after all adjusting entries have been made, the factory overhead accounts would have balances as follows.

FACTORY OVERHEAD	APPLIED FACTORY OVERHEAD
81,500	80,000

Not all of the actual factory overhead was charged to products by means of the budget. There was a difference, or variance, of L.E. 1,500. This difference can be closed to Cost

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of Goods Sold at the end of the year or, if desired, can be allocated to Cost of Goods Sold, Finished Goods, and Work in Process on the basis of relative cost. If too little overhead has been costed to the products, the variance is called an underapplied, underabsorbed, or unfavorable variance. On the other hand, if too much overhead has been costed to the products, the variance is called an overapplied, overabsorbed, or favorable variance. The entry to close out the actual overhead, the applied overhead, and the variance is given as follows.

Applied Factory Overhead -----	80,000	
Cost of Goods Sold -----	1,500	
Factory Overhead -----		81,500

To close out applied and actual overhead accounts, with the variance being charged to cost of Goods Sold.

APPLIED FACTORY OVERHEAD		FACTORY OVERHEAD	
ing 80,000	80,000	81,500	Closing 81,500
COST OF GOODS SOLD			
Closing	1,500		

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*Job Order Costing System*

\* Applied :

Variable overhead applied :

10,000 hours x L.E.3 per hour ----- L.E.30,000

Fixed overhead applied :

10,000 hours x L.E.5 per hour ----- 50,000

Total overhead applied ----- L.E.80,000

Actual overhead ----- 81,500

Underapplied overhead ----- L.E.1,500

If the overhead had been overapplied in the example given, the variance would have been credited to Cost of Goods Sold.

## THE CONCEPT OF CAPACITY

There are several definitions of capacity — the amount of product or service that a company can render within a given interval of time. A restaurant manager, for example, may define capacity as the number of patrons that can be served over the dinner hour, or the manager of a motel may look upon



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capacity as the number of rooms available to rent on a given night. Often, the following definitions of capacity are found to be useful.

1. Ideal capacity
2. Practical capacity
3. Expected capacity
4. Normal capacity

Ideal capacity, as the term would imply, is the maximum amount of product that can be manufactured or maximum service that can be rendered with available facilities. This is often too perfect a goal to be realized and is generally recognized to be the absolute limit. Certain interruptions and inefficiencies in production are to be expected.

Practical capacity is full utilization of facilities with allowance made for interruptions and inefficiencies. For example, production will be slowed down or stopped at times because of breakdowns, shortages of labor and materials, or retooling. These possibilities are taken into account in arriving at practical plant capacity.

Expected capacity is the level of operation budgeted or estimated. This may be at or below practical plant capacity. It

is the level at which management expects to operate during the next month or year.

Normal capacity is generally a balance between practical plant capacity and sales demand in the long run. Over a period of years, the peaks and valleys of customer demand are leveled out by averaging, and the point of average plant utilization is considered to be normal capacity.

The overhead rate used in costing products or services is computed at the normal level of operations. If a portion of the fixed overhead is not costed to the products by using a rate determined at normal capacity, management is informed by the capacity (or volume) variance that the company is operating below the average or normal level. Perhaps, this can be corrected by a greater sales effort or by better coordination between production and sales.

It may seem at first that factory overhead per unit should be calculated at the expected level of operation for the next year. After all, why should a normal overhead rate per unit be used when you already know that the company may be operating at below that level? A rate computed at the expected level of operation will come closer to costing all of the

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overhead to the products, and product cost will be more in line with actual cost. If the company plans to operate below normal capacity, an overhead rate computed at the expected level of operations will result in more of the fixed overhead being assigned to each unit of product.

For example, assume that the normal level of operation is 200,000 machine hours and that 100,000 units of product can be manufactured in that time. The fixed overhead for the year is budgeted at L.E.500,000. The normal fixed overhead per unit of product is then L.E.5 as computed as follows.

$$\frac{\text{Budgeted fixed overhead, L.E.500,000}}{\text{Units produced at normal capacity, 100,000}} = \text{L.E.5, fixed overhead per unit}$$

But management expects to operate at only 100,000 machine hours next year and produce 50,000 units of product. An overhead rate at expected capacity would be L.E.10 per unit of product.

$$\frac{\text{Budgeted fixed overhead, L.E.500,000}}{\text{Units produced at expected capacity, 50,000}} = \text{L.E.10, fixed overhead per unit}$$

The problem with using an overhead rate based on expected, rather than normal capacity, occurs when the selling price of the product is determined. If selling prices are set by adding a markup to total cost, the price will be higher when

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*Job Order Costing System*

fewer units are produced. With a higher price under competitive conditions, customers may be lost, thereby aggravating a condition that is already below normal.

For this reason, the objective is not necessarily to assign all overhead costs to the products. The products should bear the normal overhead costs, and the unabsorbed or overabsorbed fixed overhead should be recognized as a variance. This approaches the ideal of obtaining a standard product cost, and not a cost that includes all of the fixed overhead. Explicit recognition of the variance provides management with information to control the operation or to make decisions. The capacity variance is a measurement of the underutilization or overutilization of the plant and should not be buried in a higher product cost.

## **A JOB ORDER COST ILLUSTRATION**

Summarized cost data for the year ended April 30, 1989, are presented at the bottom of page 91 for Clark Machine Company to illustrate job order cost procedures using historical cost.

Historical cost is the actual cost that has been incurred, and in this chapter it will be assumed that the actual or



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historical cost is to be assigned to the products to the extent that this is possible, in Chapters 5 and 6, a standard cost accounting system will be discussed. Realistically, standards of cost and performance are established, and standard cost is identified with the products. Actual cost is measured and compared with the standard, and the difference serves as a basis for better control and planning.

It should be borne in mind that the entries given are in composite form and that in practice there are many repetitious entries to record individual transactions that take place during the fiscal year.

The sequential order of the cost transactions should also be understood. For example, the budget of factory overhead and the overhead rate calculation were made before the beginning of the fiscal year. The overhead rate must be calculated from a budget of factory overhead so that the products to be manufactured can be assigned the proper overhead cost, as nearly as it can be determined. Only at the end of the year did the company know that 220,000 direct labor hours were used, and that the actual factory overhead cost was L.E.1,336,200. Throughout the year, the manufacturer purchased materials and incurred labor and



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*Job Order Costing System*

factory overhead costs as products were continually being worked on, completed, and sold. At the same time, costs were being attached to the products and released as expenses when the products were sold.

**Clark Machine Company**  
**Transactional Data**  
**For the Year Ended April 30, 1989**

1. Materials were purchased during the fiscal year at a cost of L.E.840,000.
2. Direct materials requisitioned for production cost L.E.631,400. included in this amount is the materials cost for Job 216 of L.E.3,480. Indirect materials costing L.E.47,200 were also requisitioned.
3. Factory payrolls in total amounted to L.E.1,874,000. The income taxes withheld from the employees' wages totaled L.E.393,400, and the deduction for FICA taxes withheld amounted to L.E.106,600.
4. A distribution of the factory labor cost of L.E.1,874,000 shows that L.E.1,760,000 was direct labor while the remaining L.E.114,000 was indirect labor. The portion of

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the direct labor cost that pertained to Job 216 was L.E.1,600.

5. Factory overhead at the normal operating level of 250,000 direct labor hours has been calculated at L.E.6 an hour. During the year, 220,000 direct labor hours were used.

6. The factory overhead, in addition to the indirect materials and the indirect labor, amounted to L.E.1,175,000. Included in this amount was depreciation of L.E.120,000. The balance of the overhead was acquired through accounts payable. Job 216 was completed with 200 direct labor hours. The production order for Job 216 is shown on page 92.

7. Jobs costing L.E.2,945,200 were completed and transferred to stock during the year.

8. The cost of orders sold during the year was L.E.2,320,000.

9. Applied Factory Overhead and Factory Overhead were closed out at the end of the fiscal year with the variance being closed to Cost of Goods Sold.

**PRODUCTION ORDER**

Customer Roth Supply Co.  
 Description Welded Parts Code # 735  
 Quantity 1,000

Job Order 216  
 Date Started 1/19/89  
 Date Completed 1/27/89

Materials			Labor			Overhead	
Date	Code	Amount	Date	Code	Amount		
Jan. 19	52	L.E. 3,130	Jan. 19 to 23	140	L.E. 1,120	Direct Labor Hours	200
						Overhead Rate	L.E. 6.00
						Applied Overhead	L.E. 1,200
23	68	350	Jan. 26 to 27	60	480	Summary	
						Direct Materials	L.E. 3,480
						Direct Labor	1,600
						Factory Overhead	1,200
						Total Cost	L.E. 6,280
	Total	L.E. 3,480	Total	200	L.E. 1,600	Unit Cost	L.E. 6,280

**Figure 3.2** A Completed Production Order

The transactions were entered in the accounts as follows.

**1. Materials purchased :**

Materials----- 840,000  
 Accounts Payable----- 840,000  
 Purchase of materials.

(The cost of each type of material was also entered on

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the appropriate materials inventory ledger cards).

## 2. Materials Requisitioned :

Work in Process-----	631,400	
Factory Overhead -----	47,200	
Materials-----		678,000
Materials issued to production.		

(Requisition forms were the basis for entries reducing the materials inventory ledger and for posting direct materials costs to each job order and posting indirect materials costs to the factory overhead subsidiary ledger).

## 3. Factory Payrolls :

Payroll-----	1,874,000	
Employees Income Tax Payable		393,400
FICA Tax Payable-----		106,000
Wages Payable-----		1,374,000
Aggregate Factory Payrolls		

## 4. Distribution of labor Cost :

Work in Process-----	1,760,000	
Factory Overhead -----	114,000	
Payroll-----		1,874,000

Payroll distribution for  
the year.

(A classification of labor time by jobs was shown by labor time tickets. These tickets were the basis for distribution of direct labor cost to individual job orders and for posting indirect labor cost to the factory overhead subsidiary ledger).

#### 5. Factory Overhead Applied :

Work in Process-----	1,320,000
Applied Factory Overhead---	1,320,000
(Factory Overhead Applied to Products on Direct Labor Hour Basis. 220,000 hours x L.E.6 rate = L.E.1,320,000).	

#### 6. Actual Factory Overhead (in addition to indirect materials and indirect labor) :

Factory Overhead -----	1,175,000
Accumulated Depreciation---	120,000
Accounts Payable-----	1,055,000
Actual factory overhead recorded.	

(Entries were made to record specific costs in the factory overhead ledger).



### 7. Work completed during the year and transferred to stock :

Finished Goods----- 2,945,200

Work in process ----- 2,945,200

Transfer of cost of completed orders to Finished Goods.

(Completed job orders were removed from the file of job orders in process and held as a subsidiary ledger supporting the finished goods inventory. Separate ledger cards may be kept for the finished goods inventory if sales are not made on a strict order basis).

### 8. The cost of products Sold :

Cost of Goods Sold----- 2,320,000

Finished Goods ----- 2,320,000

To record the cost of products sold to customers.

(Deductions were recorded in the finished goods inventory ledger cards. Entries were also made to bill the customers for the sales).

## 9. Applied Factory Overhead and Factory Overhead Closed :

Applied Factory Overhead-----	1,320,000	
Cost of Goods Sold -----	16,200	
Factory Overhead-----		1,336,200
To close factory overhead accounts.		

(Actual overhead not absorbed as a part of the product cost is closed to Cost of Goods Sold).

## SUMMARY

One of the objectives in cost accounting is to determine the cost to render a given service, to manufacture a given quantity of product, or to complete some project. The cost of the direct materials and the direct labor can be measured and identified with the service or product; but the factory overhead, consisting of indirect materials, indirect labor, heat and light, insurance, and so on, can only be related to the service or product by allocation.

Factory overhead is budgeted at the normal operating level and divided by a budgeted factor that is related both to overhead cost and to the products. The factor selected may be

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direct labor hours if the overhead consists largely of indirect labor costs, such as supervision and fringe benefit costs. The "direct labor hours" factor serves as a bridge between the product and the overhead, with its large portion of indirect labor costs; direct labor has a connection with both indirect labor and with the product. On the other hand, machine hours may be more appropriate if a large part of the overhead is lubrication, maintenance, and other costs generally related to machine operation. Both the overhead cost and the factor are budgeted at a normal level of operations, and the rate obtained by making the division is used to allocate overhead to services or products.

Actual costs are accumulated, and comparisons of actual and estimated costs for each service or job order help management to control costs. Actual overhead incurred can be compared with the overhead applied to the services or products. If any factory overhead is unabsorbed through allocation (or if overhead is overabsorbed), management can use this information to control the operation. A favorable or unfavorable capacity variance is a measure of how well the plant is being utilized.

## PROBLEM FOR YOUR REVIEW

Johnson Schuman owns and operates a plumbing and heating company. Two overhead rates are used in applying overhead costs to the jobs. One is based on direct labor hours, and the other is based on machine hours. The machine is a backhoe used in digging service lines. Overhead costs of operating the backhoe are kept separately, so that only the jobs requiring the use of the backhoe are charged an overhead rate per machine hour.

Overhead for the year has been budgeted for a normal operating capacity 6,000 direct labor hours and 1,800 machine hours (hours of backhoe operation). The overhead budgets are given as follows.

Budget at	Budget at
6,000 direct	1,800 machine
labor hours	hours

### Budgeted Factory Overhead :

Supplies-----	L.E. 3,800
Indirect labor -----	24,000
Supervision -----	50,000
Payroll taxes -----	18,200

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Telephone -----	2,600	
Heat and light -----	3,200	
Rent – building -----	15,000	
Insurance and taxes -----	4,000	L.E. 1,400
Fuel -----	1,800	4,800
Depreciation – equipment -----	2,200	8,600
Miscellaneous -----	1,200	
Lubrication -----		1,600
Maintenance -----		3,700
Repairs -----		1,500
Total overhead budget -----	<u>L.E. 126,000</u>	<u>L.E. 21,600</u>

On February 1, the cost of work in process was L.E.440 and consisted of only one job, the job for W. Hartenstine. Details with respect to the cost of the Hartenstine job are given as follows.

Direct materials -----	L.E.112
Direct labor -----	160
Overhead -----	168
Cost at February 1 -----	<u>L.E.440</u>

Costs and other data pertaining to jobs worked on during February are as follows.



*Job Order Costing System*

	Direct Materials	Direct Labor	Labor Hours	Machine Hours
W. Hartenstine -----	L.E. 135	L.E. 320	16	-
C. Lasher-----	246	560	28	-
P. Romero -----	230	240	12	-
(machine hours)-----	---	125	-	5
M. Tellerico -----	84	60	3	-
All other jobs-----	<u>842</u>	<u>14,000</u>	<u>500</u>	<u>160</u>
Totals-----	1,537	15,305	559	165

The direct labor cost is L.E.20 per hour of ordinary labor and L.E.25 per hour of backhoe operation.

All orders were finished during February with the exception of the Tellerico order which was still in process.

Required:

- (1) Compute an overhead rate per direct labor hour and an overhead rate per machine hour.
- (2) Prepare a journal entry to record the cost of the work done in February.
- (3) Prepare a journal entry to transfer work completed in February to the finished goods inventory.

- (4) Give the costs of each job listed, identifying costs by the cost elements: direct materials, direct labor, overhead-labor, and overhead-machine.

**Solution :**

- (1) Budget of overhead for

$$\frac{\text{Direct labor hours, L.E. 126,000}}{\text{Budget of direct labor hours, 6,000}} = \text{L.E. 21 per direct labor hour}$$

Budget of overhead for

$$\frac{\text{Machine hours, L.E. 21,600}}{\text{Budget of machine hours, 1,800}} = \text{L.E. 12 per machine hour}$$

- (2) Work in Process ----- 30,561

Materials ----- 1,537

Payroll ----- 15,305

Applied Overhead – labor ----- 11,739

Applied Overhead – machine ----- 1,980

Costing jobs for work done in February

Overhead – labor ----- 559 hrs. x L.E. 21 rate

Overhead – machine ----- 165 hrs. x L.E. 12 rate

- (3) Finished Jobs ----- 30,794

Work in Process ----- 30,794

*Job Order Costing System*

To transfer cost of work completed in  
February to Finished Jobs.

Work in process at February 1 -----	L.E. 440
Add February Costs -----	30,561
	31,001
Less cost of incomplete Tellerico job -----	207
Cost work completed in February -----	<u>L.E. 30,794</u>

Work in process at February 28 :

Tellerico Job :

Direct materials -----	L.E. 84
Direct labor -----	60
Overhead labor (3hrs. x L.E.21 rate) -----	63
Total cost -----	<u>L.E. 207</u>

(4)

	Direct Materials	Direct Labor	Overhead - Labor	Overhead - machine	Total Cost
W. Hartenstine -----	L.E. 247	L.E. 480	L.E. 504	L.E. —	L.E. 1,231
C. Lasher -----	246	560	588	—	1,394
P. Romero -----					
(machine hours cost) 230	240	252	—	} 60	907
	—	125	—		
M. Tellerico -----	84	60	63	—	207
All other jobs -----	842	14,000	10,500	1,920	27,262
Total costs -----	<u>L.E. 1,649</u>	<u>L.E. 15,465</u>	<u>L.E. 11,907</u>	<u>L.E. 1,980</u>	<u>L.E. 31,001</u>

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Combine the cost of February 1 Work in Process for Hartenstine with current cost of the job to get the total cost of the Hartenstine job.

For each job, multiply the direct labor hours given by the L.E.21 overhead rate per direct labor hour.

For each job, where appropriate, multiply the machine hours by the L.E.12 overhead rate per machine hour.

### TERMINOLOGY REVIEW

<b>Job order cost system (79)</b>	<b>Overapplied or overabsorbed variance (88)</b>
<b>Job or production order (79)</b>	<b>Capacity (89)</b>
<b>Work in process account (80)</b>	<b>Ideal capacity (89)</b>
<b>Cost overrun (82)</b>	<b>Practical capacity (89)</b>
<b>Overhead rate (84)</b>	<b>Expected capacity (89)</b>
<b>Flexible budget (84)</b>	<b>Normal capacity (89)</b>
<b>Capacity or volume variance (87)</b>	
<b>Underapplied or underabsorbed variance (88)</b>	

## **QUESTIONS FOR REVIEW**

1. Are costs of production charged to expense when incurred?
2. Name the three cost elements. Can all three cost elements be identified directly with the product? Explain.
3. What are the two basic cost accounting systems?
4. Describe briefly how costs flow through the accounts in job order costing.
5. In a job order cost system, what objective evidence (business form) is used to identify the cost of direct materials with a specific production order? What form is used to identify direct labor with a production order?
6. Explain why a budget is used in costing factory overhead rather than waiting to assign actual overhead cost after the end of the year.
7. What is the basis for selecting a factor to be used in costing factory overhead?
8. What is the total cost saving if 80 direct labor hours can be saved when direct labor cost per hour is L.E.7, and variable overhead that varies per direct labor hour is L.E.5 an hour?



9. What account is credited when factory overhead cost is assigned to work in process?
10. How is the difference between the actual factory overhead and the overhead assigned to the products handled at the end of the year?
11. If the company does not expect to operate at normal capacity during the next year, why should the products be costed by using an overhead rate determined at normal capacity?

## EXERCISES

- (1) **Cost of Orders.** Goodman Repair Services specializes in the routine maintenance and repair of power lawn mowers and other small machines. Three orders (#721, #722, and #723) were started and completed in March. Materials costing L.E.37 were used on order #721, materials costing L.E.16 were used on order #722, and materials costing L.E.7 were used on order #723. Labor is paid at a uniform rate of L.E.9 per hour, and overhead is applied at 50 percent of labor cost. During the month, 3 labor hours were used for order #721, 2 hours for order #722, and 4 hours for order #723.

**Required:**

Compute the cost of each order, showing separately the cost of materials, labor, and overhead.

- (2) **Tracing the Cost Flow**. Latshaw Drill Company used L.E.617,000 in direct materials in April for the production of various orders. Direct labor cost for the month was L.E.350,000. Factory overhead is costed to production at 60 percent of direct labor cost.

**Required:**

Prepare journal entries to record the costs entered in production.

- (3) **Tracing the Cost Flow**. During the fiscal year, Fletcher Instruments, Inc. purchased direct materials costing L.E.385,000 and used direct materials costing L.E.296,000 in production. Indirect materials costing L.E.28,000 were used and recorded as factory overhead. Factory payrolls amounted to L.E.240,000 in direct labor and L.E.52,000 in indirect labor. Factory overhead, in addition to indirect materials and indirect labor, amounted to L.E.43,000 (record as a credit to Accounts Payable). Factory overhead is applied to the production orders at 50

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percent of direct labor cost. The cost of production orders completed during the fiscal year was L.E.428,000. The cost of goods sold was L.E.342,000, and sales revenue was L.E.487,000. No inventories were on hand at the beginning of the fiscal year.

### ***Required:***

- (1) Prepare T-accounts for the following accounts.

Materials	Applied Factory Overhead
Payroll	Accounts Payable
Work in Process	Wages Payable
Finished Goods	Accounts Receivable
Cost of Goods Sold	Sales
Factory Overhead	

Enter the transactions directly into the T-accounts. Refer to the job order cost illustration in this chapter as an example. Close the factory overhead variance directly into Cost of Goods Sold.

- (2) Prepare a summary statement showing sales revenue, cost of goods sold, and gross margin for the fiscal year.
- (4) **Factory Overhead Rates**. Jensen Supply Company normally operates at 450,000 direct labor hours a year. At

*Job Order Costing System*

this level of operation, variable overhead has been budgeted at L.E.360,000, and fixed overhead has been budgeted at L.E.900,000.

**Required:**

- (1) Compute the total factory overhead rate per direct labor hour at normal capacity.
  - (2) Determine the variable portion of the overhead rate at normal capacity. What would the variable overhead rate be if normal capacity had been established at 400,000 direct labor hours? Assume that variable cost varies in direct proportion with hours of operation.
  - (3) Determine the fixed portion of the overhead rate at normal capacity. What would the fixed overhead rate be if 400,000 direct labor hours were considered normal capacity? Explain why the rate differs depending upon the level set as normal capacity.
- (5) **Factory Overhead Rates.** Mendez Specialities Comp-any has prepared a flexible budget of factory overhead for the year. The budget is summarized as follows.

Budgeted machine hours -----	150,000	200,000	250,000
Variable overhead -----	L.E.300,000	L.E.400,000	L.E.500,000
Fixed overhead -----	600,000	600,000	600,000
Total overhead -----	L.E.900,000	L.E.1,000,000	L.E.1,100,000

**Required:**

- (1) If 200,000 machine hours are considered to be a normal level of operation, determine the factory overhead costing rate. Give the variable and fixed portions of the rate.
  - (2) Assume that the company operated at an actual level of 150,000 machine hours. How much variable overhead would be apportioned to the products by using the rate determined at 200,000 machine hours? Would all of the variable overhead budgeted for 150,000 machine hours be absorbed?
  - (3) Assuming again that the company operated at 150,000 machine hours, how much of the fixed overhead would be apportioned to the products by using the rate determined at 200,000 machine hours?
  - (4) Explain why all of the budgeted fixed overhead would not be absorbed at 150,000 machine hours. What name is given to the difference between the budgeted fixed overhead and the fixed overhead absorbed by the products?
- (6) **Factory Overhead Costing.** Bronson Tool Company has estimated that variable factory overhead varies at the rate



of L.E.6 per machine hour. Fixed factory overhead has been budgeted at L.E.500,000 for the year.

Normal capacity has been established at 100,000 machine hours for the year.

The company actually operated at 95,000 machine hours for the year. Variable overhead for the year was L.E.570,000, which is exactly the amount that would be budgeted for 95,000 machine hours. Actual fixed overhead was L.E.500,000 as budgeted.

***Required:***

- (1) Compute the factory overhead costing rate, breaking it into a variable and a fixed rate.
  - (2) Determine the balance of actual overhead in Factory Overhead (the factory overhead control account) before closing.
  - (3) Determine the balance of Applied Factory Overhead before closing.
  - (4) Was there a capacity variance for the year? If so, explain why and determine the amount of the variance.
- (7) **Factory Overhead Rates.** Schramm Parts Company operates with two manufacturing departments.

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Department 1 is more labor intensive, and the overhead rate for that department is based on direct labor hours. Department 2 uses more machinery and equipment, and the overhead rate for Department 2 is based on machine hours.

Budgeted hours and budgeted overhead at normal capacity are given as follows for each department.

	Departments	
	1	2
Budgeted direct labor hours	50,000	---
Budgeted machine hours	---	150,000
Budgeted overhead	L.E.250,000	L.E.450,000

Order #878 required 50 hours of direct labor in Department 1 and 30 machine hours in Department 2.

## Required:

- (1) Compute the factory overhead rates for each of the two departments.
  - (2) Determine the factory overhead applied to Order #878 in each of the two departments.
- (8) **Journal Entries for Overhead.** Garcia Printing Company has budgeted shop (factory) overhead at L.E.250,000 for the year at 200,000 normal hours of operation. Actual

overhead for the year amounted to L.E.253,000. Included in this amount is depreciation of L.E.16,000. All overhead costs with the exception of depreciation were credited to Accounts Payable. The company operated at 190,000 hours during the year.

**Required:**

- (1) Prepare a journal entry to record the actual overhead cost incurred during the year.
- (2) Prepare a journal entry to record the overhead applied to the job orders.
- (3) Prepare a journal entry for the end of the year to close actual and applied overhead. Close the variance to Cost of Goods Sold.

- (9) **Analysis of Job Orders.** Data from three production orders completed Daniel Products Company are given as follows.

	Production Orders		
	163	164	165
Direct materials -----	L.E.5,600	L.E.3,800	L.E.2,600
Direct labor -----	4,500	2,700	3,000
Factory overhead applied ----	2,400	900	1,200
Total cost -----	<u>L.E.12,500</u>	<u>L.E.7,400</u>	<u>L.E.6,800</u>
Direct labor hours -----	600	300	400
Number of units produced ----	1,000	500	200

**Required:**

- (1) What was the direct labor rate per hour on each of the orders?
- (2) What was the overhead rate per hour on each of the orders, assuming this rate is based on direct labor hours?
- (3) Compute the total cost per unit of product on each order.

(10) **Capacity Levels and Overhead Rates.** LaRue Fixture Company operates at 120,000 machine hours a year at normal operating capacity. Variable overhead has been budgeted at L.E.5 per machine hour and fixed overhead for the year has been budgeted at L.E.480,000.

Next year, management estimates that the company will operate at only 100,000 machine hours.

The production manager states that the overhead rate should be calculated at 100,000 hours to be realistic.

The sales manager objects, stating that the company has trouble enough now getting orders; and inasmuch as pricing is based on cost, the use of a higher overhead rate would only aggravate the problem.

**Required:**

- (1) Compute a machine-hour overhead rate at normal capacity and at the expected level of capacity next year.
- (2) Comment on the positions taken by the production manager and the sales manager.

(11) **Journal Entries for Flow of Cost.** Highland Machine Company purchased materials at a cost of L.E.546,000 in 1989. Direct materials costing L.E.396,000 were requisitioned for the various job orders. Factory payrolls for the year totaled L.E.350,000. Income tax of L.E.74,000, FICA tax of L.E.28,000, and union dues of L.E.12,000 were withheld from wages. Assume that all of the factory payroll was direct labor for the job orders. Factory overhead was applied to production at the rate of L.E.8 per machine hour. During the year, the company operated at 60,000 machine hours. Actual factory overhead for the year, including depreciation of L.E.58,000, was L.E.476,000. Credit the actual factory overhead, excluding depreciation, to Accounts Payable.



**Required:**

Prepare journal entries to record the transactions for which information is given. Close the factory overhead variance to Cost of Goods Sold.

- (12) **Flow of Cost.** At the beginning of 1989 Nunzio Company had the following inventory balances:

Materials Inventory-----	L.E.27,000
Work in Process Inventory-----	48,000
Finished Goods Inventory-----	34,000

During the year materials costing L.E.176,000 were purchased. Materials requisitioned for job orders cost L.E.93,000, and indirect materials costing L.E.38,000 were charged to Factory Overhead.

Factory payrolls were L.E.212,000 with income taxes withheld of L.E.43,000 and FICA taxes withheld of L.E.17,000. Indirect labor included in the payrolls at L.E.74,000 was charged to Factory Overhead. All other labor was direct labor charged to the jobs.

Factory overhead was applied to the jobs at the rate of L.E.8 per machine hour.

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*Job Order Costing System*

During the year, the company operated at 45,000 machine hours and incurred factory overhead costs of L.E.260,000 (in addition to the indirect materials and indirect labor as stated above). Depreciation of L.E.47,000 was included in the L.E.260,000 of factory overhead costs.

Products costing L.E.465,000 were completed during the year, and the cost of goods sold was L.E.480,000.

***Required:***

- (1) Set up T-accounts as follows and enter beginning balances where appropriate.

Materials Inventory

Accumulated Depreciation

Work in Process Inventory

Income Taxes Withheld

Finished Goods Inventory

FICA Taxes Withheld

Payroll

Wages Payable

Accounts Payable

Factory Overhead

Accounts Payable

## Applied Factory Overhead

## Cost of Goods Sold

- (2) Enter transactions directly into the T-accounts. Close Factory Overhead and Applied Factory Overhead with the variance closed to Cost of Goods Sold.

## PROBLEMS

- 3-1. **Factory Overhead Rates**. McElroy Metals Company manufactures a product line that has a direct materials cost of L.E. 14 per unit and a direct labor cost of L.E. 7 per unit. Factory overhead is applied to production on the basis of machine hours with two units of product produced each machine hour. Under normal conditions, the company operates at 200,000 machine hours each year and produces 400,000 units of product.

The following is a summarized flexible budget.

Machine hours-----	150,000	200,000	250,000
Variable overhead---	L.E. 600,000	L.E. 800,000	L.E. 1,000,000
Fixed overhead-----	600,000	600,000	600,000
Total overhead -----	L.E. 1,200,000	L.E. 1,400,000	L.E. 1,600,000

**Required:**

- (1) Compute the overhead rate per machine hour at normal operating capacity.
- (2) Determine the total unit cost of the product at the normal operating capacity of 200,000 machine hours.
- (3) If normal operating capacity were 250,000 machine hours, what would be the total overhead rate per machine hour?
- (4) If the company operated at 250,000 machine hours and made 500,000 units of product during the year, what would the capacity variance be? Would the fixed overhead be overapplied or underapplied? (Use 200,000 machine hours as normal.)

- 3-2. **Overhead Rates for a Service Enterprise.** Mountain View Hostel was purchased by a naturalist who hopes to show people the value of wildlife and also provide them with a pleasant vacation retreat. Costs have been budgeted for the year and are to be allocated over the 120 days of the tourist season. The hostel has a normal capacity of 100 persons per day. Using the cost information, the owner hopes to develop a billing rate per person per day that will yield modest profit.

**Required:**

- (1) Compute an overhead rate per direct labor hour at normal operating capacity.
- (2) Compute an overhead rate per direct labor hour at the expected level of operating capacity.
- (3) Determine the overhead variance when the rate is figured at normal capacity and when the rate is figured at expected capacity.
- (4) Point out the fallacy in Kahl's argument.
- (5) Is Kahl correct in stating that the variance is worse because of the relatively large fixed overhead? Explain.

3-4. **Cost of Contracts.** Dorsey Contracting Company repaves highways and does excavation work. On January 1, 1989, the Eastern Highway Project was in process with costs as given in the following table.

Materials -----	L.E. 760,000
Labor -----	380,000
Overhead -----	190,000

During 1989, the company incurred costs for various projects as follows.



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*Job Order Costing System*

	Eastern Highway	State University	Clover Estates	Route 691	Market Street	Total
Materials --	L.E.215,000	L.E.1,780,000	L.E.170,000	L.E.3,720,000	L.E.350,000	L.E.6,235
Labor ----	170,000	1,420,000	520,000	1,480,000	260,000	3,920
Overhead ---	85,000	710,000	295,000	740,000	130,000	1,960
Total ----	L.E.470,000	L.E.3,910,000	L.E.1,055,000	L.E.5,940,000	L.E.740,000	L.E.12,115

Overhead is costed to the projects at 50 percent of labor cost. Actual overhead cost for 1989 was L.E.2,120,000.

All projects, with the exceptions of the State University project and the Market Street Project, were completed during the year.

Dorsey Contracting Company uses Contracts in Process instead of a work in process account. Projects completed do not pass through a finished goods account, but are charged directly to Cost of Completed Projects.

Included in the actual overhead cost is L.E.420,000 for indirect materials, L.E.930,000 for indirect labor, and L.E.580,000 for depreciation. All other overhead cost is credited to Accounts Payable.

***Required:***

- (1) Journalize the costs charged to Contracts in Process.
- (2) Journalize the actual overhead costs.

- (3) Journalize the costs transferred to Cost of Completed Projects.
- (4) Close the actual and applied overhead costs with the variance closed directly to Cost of Completed Projects.
- (5) Determine the total cost of the Eastern Highway Project and the cost of Contracts in Process at the end of the year. (Show detail by project and cost element.)

3-5. **Cost of Service.** Starr Library, located in a small western city, depends upon donations and membership dues for support. The membership dues are applied to the annual cost of operation, and donations are used to make additions to the library.

In 1988, the library planned to add bookmobile service for subscribers living in outlying areas. Each person will pay an annual subscription fee, with cost to be based on miles driven and number of persons served in each district.

Miles driven and number of persons to be served by the bookmobile have been estimated for 1989 as follows.

*Job Order Costing System*

District	Miles per Year	Number of Subscribers
Dry Canyon-----	6,000	600
Sand Valley-----	1,000	200
Castle District-----	2,000	400
Little Stream-----	5,000	800
Totals-----	14,000	2,000

Costs of van operation each year, including depreciation, have been estimated at L.E.7,000 plus the salary of a driver at L.E.28,000. These costs are to be apportioned first on the basis of mileage driven per district and then by the number of subscribers per district.

The library board believes that the subscribers in outlying areas should also bear their share of general library overhead estimated at L.E.180,000 for 1989. A total of 50,000 subscribers (including those in outlying areas) are to share this cost.

***Required:***

Based on the information given, determine the fee for a subscriber in each district served by the bookmobile.

- 3-6. **Overhead Rate with Uncertainty.** Miles Parts Company is planning a factory overhead budget. There is some uncertainty with respect to utility costs, and

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computations are to be made for each of two likely situations.

Variable overhead costs per machine hour have been estimated as follows.

	Per Hour
Indirect materials and supplies -----	L.E. 1.600
Machine maintenance -----	0.300
Heat and light -----	0.400 Or 0.500
Power -----	0.290 Or 0.250

If heat and light costs are higher, power costs will also be higher.

A fixed overhead budget is given as follows.

Supervision -----	L.E. 80,000
Indirect labor -----	95,000
Taxes and insurance -----	8,500
Repairs and maintenance -----	7,300
Heat and light -----	14,200
Depreciation -----	35,000
<b>Total fixed overhead budget -----</b>	<b><u>L.E. 240,000</u></b>

There is also some uncertainty about the number of machine hours to be designated as normal capacity. Some of the members of management believe that 70,000 hours should be designated as normal, while others believe that 80,000 hours are a more reasonable estimate of normal capacity.

**Required:**

Prepare budgets for either of the utility cost assumptions for both of the possible normal capacity estimates.

- 3-7. **Costs of Individual Orders.** During the month of March, Cresson Machine Company started production orders 116, 117, and 118. Order 115 was in process at the beginning of the month with direct materials cost of L.E.37,000, direct labor cost of L.E.20,000, and applied factory overhead of L.E.24,000. During the month, direct materials were requisitioned, and direct labor was identified with the orders as follows.

Order No.	Direct Materials	Direct Labor
115 _____	—	L.E.25,000
116 _____	L.E.41,000	40,000
117 _____	52,000	50,000
118 _____	46,000	15,000

Factory overhead is applied to the orders at 120 percent of direct labor cost.

Orders 115, 116, and 117 were completed and sold in March. Order 118 was incomplete on March 31.



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**Required:**

- (1) Determine the cost of each order by cost element.
- (2) What was the total cost of direct materials requisitioned in March and charged to Work in Process?
- (3) Determine the cost of goods sold in March.
- (4) What was the Work in Process balance on March 31?

3-8. **Incomplete Data** Gottlieb Fixtures, Inc. keeps accounting and cost records on a personal computer. During the month of January, data were lost as a result of errors made by a new operator. Fortunately, some data were retrieved and are set forth as follows in T-account form.

<b>PAYROLL</b>		<b>FACTORY OVERHEAD</b>	
<hr/>		<hr/>	
150,000		175,000	
<hr/>		<hr/>	
<b>WORK IN PROCESS INVENTORY</b>		<b>FACTORY OVERHEAD APPLIED</b>	
<hr/>		<hr/>	
Bal., Jan. 1	62,000		
Materials	117,000		
<hr/>		<hr/>	
<b>FINISHED GOODS INVENTORY</b>		<b>COST OF GOODS SOLD</b>	
<hr/>		<hr/>	
Bal., Jan. 1	31,000	346,000	
<hr/>		<hr/>	

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*Job Order Costing System*

The payroll included L.E.30,000 in indirect labor, which is part of the factory overhead of L.E.175,000.

Factory overhead is applied to the products at 150 percent of direct labor cost.

The balance of Work in Process on January 31 was L.E.77,000.

***Required:***

- (1) From the information given, determine the direct labor and the factory overhead applied to production in January.
- (2) What was the cost of work completed and transferred to the finished goods inventory for the month?
- (3) How much should the finished goods inventory cost on January 31?
- (4) Determine the factory overhead variance in January.  
Has overhead been overapplied or underapplied?

3-9. **Incomplete Data.** You find that the cost records at Maltese Tool Company have been poorly maintained. Some information has been entered, but other information is missing. Fortunately, the information given is correct.

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The costs for jobs 686, 687, and 688 are to be determined. The direct materials cost is L.E.528 for job 686 and L.E.715 for job 687. The cost of direct materials requisitioned during the month for all other jobs, except job 688, cost L.E.4,820. No jobs were in process at the beginning of the month. The total cost of direct materials requisitioned during the month was L.E.6,913.

Labor is paid at a uniform rate of L.E.10 an hour. Job 686 required 82 direct labor hours, and job 688 required 43 direct labor hours. There was a total of 760 direct labor hours for the month. The direct labor cost of all other jobs, with the exception of the three jobs being considered, was L.E.5,850.

Two machine hours are used for each direct labor hour. Overhead is applied at a rate of L.E.4 per machine hour. The actual overhead cost for the month was L.E.6,230. Jobs 686, 687, and 688 were completed during the month.

***Required:***

- (1) Compute the costs for jobs 686, 687, and 688. Show costs by cost element.

- (2) Determine the amount of factory overhead applied to all orders during the month.
- (3) What was the amount of the factory overhead variance?
- (4) You have received a telephone call from the plant manager requesting the total cost per unit on job 686. There were 50 units of product on this order.

3-10. **Effect of Overhead Cost on Product Cost.** Fixed factory overhead is a large part of total product cost for Precision Tech, Inc. A flexible overhead budget for the year is given as follows in summary form.

Machine hours ———	200,000	250,000	300,000	350,000
Variable overhead	L.E.600,000	L.E.750,000	L.E.900,000	L.E.1,050,000
Fixed overhead ———	1,500,000	1,500,000	1,500,000	1,500,000
Total overhead ———	L.E.2,100,000	L.E.2,250,000	L.E.2,400,000	L.E.2,550,000

The company has followed the practice of billing customers at 150 percent of total materials, labor, and factory overhead cost.

An opportunity to reduce variable overhead cost to L.E.2.50 per machine hour has been found.

Under normal conditions, the company operates at 300,000 machine hours a year. Management believes that the normal level of operation should be increased to

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**Chapter Four**

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350,000 machine hours, inasmuch as the company has been operating at approximately this level for the past few years.

The factory superintendent would like to see the effect on product cost and selling price if the saving in variable overhead and the revised concept of normal hours of operation are put into use. One standard order is to be used as a model. The direct materials and direct labor costs of this order are as follows.

Direct materials----- L.E. 1,100

Direct labor----- 200

This order requires 50 machine hours, and consists of 200 units.

***Required:***

- (1) At the present time, what is the variable overhead cost per machine hour? Is this true at all machine-hour levels?
- (2) What is the fixed overhead cost per machine hour at 300,000 machine hours?
- (3) What is the fixed overhead cost per machine hour at 350,000 machine hours?



(4) Use the order given as a model. Compute the total cost, unit cost, and unit selling price for each of the alternatives listed as follows.

(a) Variable overhead cost is L.E.3 per hour and 300,000 machine hours is the normal level of operation.

(b) Variable overhead cost is L.E.3 per hour and 350,000 machine hours is the normal level of operation.

(c) Variable overhead cost is L.E.2.50 per hour and 300,000 machine hours is the normal level of operation.

(d) Variable overhead cost is L.E.2.50 per hour and 350,000 machine hours is the normal level of operation.

3-11. **Labor Hours and Variable Overhead.** Ordinarily, Zarro Components, Inc. uses 120,000 labor hours to manufacture 600,000 units of product. Labor cost is at the rate of L.E.10 per hour. At a normal capacity of 120,000 labor hours, the budget of factory overhead is as follows.

Variable overhead ----- L.E.300,000

Fixed overhead-----	600,000
Total overhead budget-----	<u><u>L.E. 900,000</u></u>

The production manager has found a way to reduce the labor time so that 6 units can be manufactured per hour instead of 5.

“this will not only help to reduce labor cost”, the manager says, “but it will also reduce overhead”.

The superintendent of the plant agrees that this reduction in labor cost will mean a lot, but argues that overhead cost is a fixed item and cannot be reduced by saving labor time.

**Required:**

- (1) Do you agree with the production manager or the superintendent? Give your reasons.
- (2) What is the total labor and overhead cost when 120,000 labor hours are used?
- (3) What is the total labor and overhead cost when 100,000 labor hours are used and are considered to be normal?

3-12. **Fixed Overhead and Product Cost.** There is some disagreement at the Chapman Plant of McLaughlin

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*Job Order Costing System*

Micro Products, Inc. with respect to how the fixed overhead cost should be identified with the products.

The production manager believes that fixed overhead should be assigned to the products on the basis of a normal capacity of 500,000 machine hours per year. The cost accountant states that 500,000 machine hours is not normal and that 400,000 machine hours is a better measurement of normal capacity.

Another point of view expressed is that it will make little difference which number of hours is designated a normal. The cost per unit of product will be the same in any event, since the major portion of the product cost is the cost of direct materials.

Cost data for three typical orders are as follows.

	Order		
	1	2	3
Direct materials cost per unit of product—————	L.E.20	L.E.27	L.E.26
Variable overhead cost per unit product—————	2	2	2
Number of units on order ———	1,000	1,500	2,000
Labor time per order—————	200hrs.	300hrs.	100hrs.

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There are two machine hours for every direct labor hour. The direct labor cost per labor hour is L.E.10. in addition to the variable overhead per unit of product here is a variable overhead of L.E.8 per machine hour. Fixed overhead for the year has been budgeted at L.E.3,000,000.

The company has followed the practice of billing customers at 150 percent of the total cost of the order.

***Required:***

- (1) Determine the total and unit costs for each of the three orders under both assumptions as to normal operating capacity.
- (2) What price per unit would be billed to the customers for each of the three orders under both assumptions as to normal capacity?
- (3) Comment on the statement, "It will make little difference which number of hours is designated as normal. The cost per unit of product will be the same in any event."

3-13. **Job Order Cost Transactions.** A summary of manufacturing cost transactions for Coursen Motors, Inc. for 1989 is as follows.

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*Job Order Costing System*

(a) Materials costing L.E.1,146,000 were purchased from suppliers on account.

(b) Materials were requisitioned during the year as follows.

Direct materials ----- L.E.786,000

Indirect materials (factory overhead)----- 143,000

Included were direct materials requisitions of L.E.19,000 for order 115.

(c) The factory payroll for the year amounted to L.E.437,000. FICA taxes withheld amounted to L.E.33,000, income taxes withheld amounted to L.E.87,000, and the amount paid to the employees was L.E.317,000.

(d) The factory labor was utilized as follows.

Direct labor ----- L.E.298,000

Indirect labor (factory overhead)----- 193,000

Included in the direct labor cost was L.E.17,000 identified by labor time tickets with order 115.

(e) Factory overhead was applied to production at 150 percent of the direct labor cost.

(f) Factory overhead cost during the year, in addition to the cost of indirect materials and indirect labor previously referred to, amounted to L.E.173,000.

Included in this amount was depreciation of



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L.E.52,000. Credit the balance of this cost to Accounts Payable.

(g) Orders costing L.E.1,218,000 were completed during the year. Order 115 is included among the completed orders.

(h) Goods costing L.E.1,075,000 were sold to customers on credit terms for L.E.1,830,000.

***Required:***

- (1) Journalize the transactions and close the factory overhead variance to Cost of Goods Sold.
- (2) Compute the total cost and cost per unit of order 115 assuming that 10,000 units were produced on that order.

3-14. **Factory Overhead Cost Control.** Nancy Perkins is the supervisor of Department 5 in the Leesburg plant of Johnston Instrument Company. She is responsible for the cost of direct materials, direct labor, and variable overhead costs incurred in this department. The fixed overhead cost is not under her jurisdiction.

During the month of May, actual factory overhead costs for Department 5 were as follows.

**Actual Variable Overhead**

Job Order Costing System

Indirect materials-----	L.E.19,400
Supplies-----	14,200
Telephone -----	700
Heat and light-----	1,600
Power -----	7,000
Repairs and maintenance -----	3,200
Total variable overhead-----	<u><u>L.E.46,100</u></u>

**Actual Fixed Overhead**

Indirect labor-----	L.E.61,000
Supervision-----	42,000
Heat and light-----	7,000
Repairs and maintenance -----	9,000
Depreciation -----	21,000
Total fixed overhead -----	<u><u>L.E.140,000</u></u>
Total actual overhead -----	<u><u>L.E.186,100</u></u>

The department operated at 45,000 direct labor hours during the month of May.

A budget of factory overhead for 45,000 direct labor hours is given as follows.

**Budgeted Variable Overhead**

Indirect materials-----	L.E.16,500
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Supplies-----	12,400
Telephone -----	700
Heat and light-----	1,550
Power -----	7,000
Repairs and maintenance -----	2,350
Total variable overhead-----	<u><u>L.E.40,500</u></u>

**Budgeted Fixed Overhead**

Indirect labor-----	L.E.61,000
Supervision-----	42,000
Heat and light-----	7,000
Repairs and maintenance -----	9,000
Depreciation -----	21,000
Total fixed overhead -----	<u><u>L.E.140,000</u></u>
Total actual overhead -----	<u><u>L.E.180,000</u></u>

Variable overhead is costed to the products at the rate of L.E..90 per direct labor hour, and fixed overhead is costed to the products at the rate of L.E.2.80 per direct labor hour.

**Required:**

- (1) How much overhead was costed to the products in May?

- (2) Compute the total factory overhead variance for May.
- (3) How much of the total overhead variance can be attributed to operating below the normal capacity?
- (4) Prepare a responsibility cost report for Perkins showing all actual overhead costs, all budgeted overhead costs, and variances for each cost listed.
- (5) Identify any items of overhead that are over the budgeted amount by more than 10 percent.

3-15. **Automation and Cost.** In 1988, Smithson Motors, Inc. automated its production lines. As a result, virtually all of the labor that was directly related to creating the products has been eliminated. A smaller labor force is required, and the remaining workers are primarily monitoring machine operation and product quality. What was once classified as direct labor has now been reclassified as indirect labor.

Total budgeted manufacturing costs for the last year as a labor intensive operation are compared with the budgeted costs for a year of machine intensive operation, as shown in the following table. In both years, the budgets are for a normal level of operation. When the company operated with more labor, overhead

was assigned to the products on the basis of 400,000 direct labor hours. Under the automated operation, the rate is based on 500,000 machine hours.

	Budgets	
	Labor Intensive Operation	Machine Intensive Operation
Direct materials -----	L.E.4,870,000	L.E.4,630,000
Direct labor -----	3,260,000	0
Supervision -----	730,000	550,000
Indirect labor -----	880,000	2,720,000
Payroll taxes and fringe benefits -----	421,000	344,000
Supplies and indirect materials -----	310,000	325,000
Lubrication -----	46,000	217,000
Power -----	142,000	319,000
Maintenance – equipment -----	115,000	436,000
Repairs – equipment -----	132,000	117,000
Depreciation – equipment -----	48,000	382,000
Taxes and insurance -----	126,000	133,000
Heat and light -----	38,000	46,000
Other utilities -----	17,000	19,000
Depreciation – plant -----	80,000	80,000

One of the production managers states that the total costs of manufacturing are higher than they were before and that the company didn't save anything by automating the production lines.



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*Job Order Costing System*

The vice-president of production disagrees. "While total costs may be higher," he agrees, "the increased productivity makes it possible for us to serve a growing market with lower costs per unit of product."

In the following table, cost data for a large order are given under both production methods as a basis for comparison.

	Labor Intensive Operation	Machine Intensive Operation
Direct materials -----	L.E.640,000	L.E.615,000
Direct labor -----	680,000	0
Direct labor hours -----	60,000	0
Machine hours -----	0	30,000
Number of Product Units -----	100,000	100,000

***Required:***

- (1) Compute an overhead costing rate for both the labor intensive operation and the machine intensive operation.
- (2) Determine the total and unit cost of the large order under both types of operation.
- (3) Comment on the positions taken by the production manager and the vicepresident of production.

## CASE A—SNYDER ELECTRIC PRODUCTS, INC.

Snyder Electric Products, Inc. has automated much of its production of specialized switches and transformers. Robots are utilized in production, so much of the labor time is spent in monitoring and testing for quality. Labor cost is to a large extent on a salary basis and is now included as indirect labor cost.

There is still some direct labor cost. However, the fixed overhead cost (that now includes what was once classified as direct labor) is a predominant part of total product cost.

In one area of the plant, the materials cost per unit of product is L.E.8, and the direct labor cost is L.E.1 per machine hour.

Variable overhead costs have been budgeted as follows.

	Per Machine Hour
Supplies and other indirect materials-----	L.E.80
Power-----	40
Repairs and maintenance of equipment-----	50
Total unit cost -----	<u>L.E.1,70</u>

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*Job Order Costing System*

The fixed factory overhead has been budgeted for the year as follows.

Factory supervision -----	L.E.475,000
Indirect labor -----	1,560,000
Payroll taxes and fringe benefits -----	278,000
Supplies and other indirect materials -----	162,000
Power -----	330,000
Heat and light -----	185,000
Repairs and maintenance of equipment -----	367,000
Repairs and maintenance of plant -----	84,000
Taxes and insurance -----	68,000
Telephone -----	43,000
Miscellaneous factory overhead -----	12,000
Depreciation -----	636,000
Total budgeted fixed overhead -----	<u><u>L.E.200,000</u></u>

The president of the company observes, "With such relatively high fixed overhead cost, it is imperative that we operate at a high volume level to absorb the cost."

The company manufactures 5 units of product per machine hour, and little can be done to improve this rate of

production. Attempts will be made to reduce fixed overhead, but the budget is already tight.

Normal machine hours for the year have been established at 400,000. The immediate goal is to operate at 600,000 machine hours per year.

***Required:***

- (1) Compute the product unit cost at a 400,000 machine hour level. (Show variable overhead costs and fixed overhead costs separately.)
- (2) Compute the product unit cost at a 600,000 machine hour level. (Show variable overhead costs and fixed overhead costs separately.)
- (3) How much can unit cost be reduced by increasing production (and sales) by 50 percent, as represented by the 50 percent increase in machine hours?