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SELF REVIEW in

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Programmed Learning Aid for

MANAGEMENT ACCOUNTING

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FOREWORD

Each of the books comprising the Programmed Learning Aid Series is in programmed learning format to provide the reader with a quick, efficient, and effective means of grasping the essential subject matter.

The specific benefits of the programmed method of presentation are as follows:

1. It keeps the reader *active* in the learning process and increases his comprehension level.
2. Incorrect responses are *corrected immediately*.
3. Correct responses are *reinforced immediately*.
4. The method is *flexible*. Those who need more "tutoring" receive it because they are encouraged to reread frames in which they have missed more than one of the questions asked.
5. The method makes learning seem like a game.

The method of programming used in this PLAID on management accounting and in most of the other PLAIDS is unique and simple to use. The reader begins by reading Frame 1¹ in Chapter 1. At the end of that frame he will answer the True-False questions given. To determine the correctness of his responses he merely turns the page and examines the answers given in Answer Frame 1¹. He is told *why* his answers are true or false. He should use his performance on the questions given as a measure of his understanding of all of the materials in Frame 1¹. If he misses more than one of the questions asked, he is encouraged to reread Frame 1¹ before continuing on to Frame 2¹. This same procedure should be used throughout the PLAID. Specific instructions are given throughout as to where to turn next to continue working the program.

The reader may desire to go through the PLAID a second time leaving out the programming questions and answers. Or he may desire to further test his understanding by going through the PLAID a second time answering all of the questions once again and only rereading those frames in which his comprehension is unsatisfactory.

PLAIDS are continuously updated in new printings to provide the reader with the latest subject matter content in the field.

The author of this PLAID on management accounting is the author of one of the leading texts in management accounting. The essential subject matter is presented clearly and concisely.

ROGER H. HERMANSON
Coordinating Editor and Programmer

PREFACE

This PLAID on management accounting is designed for use by anyone interested in easily and quickly acquiring a knowledge of the essential subject matter. Specifically, it is designed as a review supplement for (1) students enrolled in a half-year follow-on management accounting course, building on an introductory course in financial accounting principles; (2) persons embarking on a master's degree program in business administration; (3) persons in a management development program; and (4) other businessmen or individuals wishing to quickly review management accounting.

Special features of this PLAID include:

1. Concise, to-the-point chapters that can be reviewed in from 30 to 50 minutes each.
2. A programmed learning format to keep the reader active in the reading process and to test his understanding as he reads the materials.
3. A table of contents and an alphabetical listing of major topics to aid in keying the PLAID to any textbook on management accounting.
4. A comprehensive index to aid in locating a specific topic.
5. Three sample examinations with answers provided to further test the reader's understanding.

Use of this PLAID should increase the reader's demonstrated grasp of the subject matter with a minimum of effort. It should also serve as a handy reference for refreshing one's memory on a particular topic.

Comments and suggestions concerning this PLAID will be appreciated. They should be addressed to the author in care of Learning Systems Company, 1818 Ridge Road, Homewood, Illinois 60430.

ROBERT N. ANTHONY

TOPICAL OUTLINE OF COURSE CONTENT

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Frame 1¹

Accounting is a system for collecting, summarizing, analyzing, and reporting, in monetary terms, information about an organization. A business accounting system consists essentially of two related parts:

1. Financial accounting.
2. Management accounting.

Financial accounting has the primary objective of providing information to parties outside the business, that is, to shareholders, bankers and other creditors, government agencies, and the general public. In most cases, outside parties must accept the information that the business chooses to supply. They could not conceivably understand this information without knowing the ground rules that governed its preparation. Since the typical outsider uses accounting information from many different businesses, there is a clear need for having the basic ground rules apply to all businesses, not only so that the information from one business can be compared with that of another but also to obviate the necessity of learning a separate set of ground rules for each business. These ground rules are the subject matter of financial accounting.

The persons responsible for operating a business—that is, the management—also need monetary information to aid them in doing their jobs effectively. Although much of this information is the same as that contained in reports prepared for outsiders, management also needs a considerable amount of additional information. *Management accounting is concerned with accounting information that is useful to management.*

The management of a business can establish whatever ground rules it wishes for the accounting information collected for internal use. Thus,

although the rules of financial accounting are applicable to all businesses, the rules of management accounting are tailor-made to meet the needs of the management of a specific business.

There is nevertheless a similarity in the management accounting of most businesses. There are obvious economies in using financial accounting information wherever possible for management accounting purposes, rather than devising two completely different systems for the two purposes. Also, there are principles of management accounting that have wide applicability, and these tend to shape the management accounting practices of a great many companies.

The terms “financial accounting” and “management accounting” are not precise descriptions of the activities they comprise. All accounting is *financial* in the sense that all accounting systems are in monetary terms, and *management* is responsible for the content of financial accounting reports.

The Structure of Accounting. The structure of financial accounting underlies all accounting. This structure consists of a few basic principles and concepts, a set of relationships among the elements comprising the accounting system, a terminology, and a number of rules and guides for the application of the principles and concepts to specific situations.

The end product of financial accounting, the objective toward which the financial accounting system is directed, is a set of financial statements called the balance sheet and the income statement. The *balance sheet reports the financial position of a business at one moment in time*, and the *income statement summarizes its financial performance over a period of time*.

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Indicate whether each of the following is true or false by writing "T" or "F" in the space provided.

- _____ 1. Financial accounting has the primary objective of supplying information to parties external to the business.
- _____ 2. Information supplied by the business to outside parties is usually tailor-made to their specifications.
- _____ 3. The basic "ground rules" of financial accounting generally apply to all business firms.
- _____ 4. The management accounting systems of all firms are identical.
- _____ 5. Many principles of financial accounting are also basic to management accounting.
- _____ 6. The end product of financial accounting is the balance sheet and the income statement.

Go to answer Frame 1¹, page 4, and check your answers.

Frame 2¹

Management Control. An important process in which accounting information is used within a business is called *management control*. This is *the process of assuring that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives*.

Management control has to do with the ongoing operation of the business. It consists of a more or less regularly recurring sequence of interrelated activities. For convenience in exposition, these activities may be classified as either control activities or planning activities. Nevertheless, the whole process is a single, indivisible one, in which the two types of activities interact and merge into one another; the same people are involved in both.

Control is the process by which management assures itself, insofar as is feasible, that actions taken by the members of an organization conform to management's plans and policies. Accounting information is useful in control as a means of:

- 1. Communication.
- 2. Motivation.
- 3. Appraisal.

As a means of *communication*, accounting reports can assist in informing the organization about management's plans and policies and, in general, the types of action that management wishes the organization to take.

Unless the business is a one-man enterprise, it is not management's job to do the work; rather, it is the responsibility of management to see to it that the work gets done by others. This requires, first, that personnel be hired and formed into an organization and, second, that this organization be motivated in such a way that it will do what management wants it to do. Accounting information can help (and also, unless properly used, can hinder) this *motivation* process.

Periodically, management needs to evaluate how well the employees are doing their jobs. Such an *appraisal* of performance may result in a salary increase, promotion, reassignment, corrective action of various kinds, or, in extreme cases, dismissal. Accounting information can assist in this appraisal process, although an adequate basis for judging a man's performance cannot be obtained solely from information revealed by accounting records.

Planning is the process of deciding what action should be taken in the future. Planning is to be distinguished from *forecasting*. A forecast is an estimate of what will happen in the future, but the forecaster makes no attempt to influence the future by his own decisions or actions. People *forecast* the weather, but they do not—except in the few areas where cloud-seeding operations are carried on—attempt to *plan* the weather.

A systematic form of planning, called *budgeting*, occurs as part of the management control

process. *Budgeting is the process of planning the overall activity of the enterprise for a specified period of time, usually a year.*

An important objective of this process is to fit together the separate plans made for various segments of the enterprise so as to assure that these plans harmonize with one another and that the aggregate effect of all of them on the

whole enterprise is satisfactory. In a very small business, top management may have a sufficient personal awareness of overall plans so that formal, written budgets are unnecessary; but a business of any considerable size is likely to be so complex that some systematic process of formulating and balancing the plans for the separate parts of the enterprise is essential.

State whether each of the following is true or false.

- _____ 1. Management control is concerned with the ongoing operation of the firm.
- _____ 2. Accounting reports are useful in communicating the plans and policies of management to the organization.
- _____ 3. A basic responsibility of management is to see that work is done by others.
- _____ 4. Accounting information may properly be used as the sole means of appraising employee performance.
- _____ 5. In accounting usage, the terms "planning" and "forecasting" are synonymous.
- _____ 6. Budgeting is the process of planning the overall activity of a firm for a specified period of time.

Turn to Answer Frame 2¹, page 4, and compare your answers.

Frame 3¹

Decision Making. Accounting information is also used as an aid in making business decisions. Although in one sense all business activities involve decision making, the type of decision meant in the present context is that which relates to some specific segment of the business, rather than to operations as a whole. This might be a decision to buy a new machine, to enter a new market, to use a new type of raw material or a new method of manufacturing, to borrow money from a bank, or any of a host of other decisions.

All these decisions are arrived at by, essentially:

- 1. Recognizing that a problem exists.
- 2. Identifying the alternative ways of solving the problem.
- 3. Analyzing the consequences of each alternative.
- 4. Comparing these consequences so as to decide which is best.

Accounting information is useful especially in the analysis step.

Some General Considerations

Following are a few general matters that apply to all sorts of problems and to all types of figures, both accounting and nonaccounting.

Figures for a Purpose. Unlike mathematics, accounting is not an end in itself. The work of accountants is justified only insofar as it contributes to some activity that is external to accounting.

Different Figures for Different Purposes. In mathematics, and in most of the physical sciences, there are definitions that are valid under a wide variety of circumstances. Such is not the case with most accounting definitions. Different purposes require different kinds of accounting figures. Since these different figures may superficially resemble one another, and since they may even be called by the same name, a person who

Answer frame 1¹

1. True. The primary objective of financial accounting is to supply information to parties outside the business.
2. False. In most cases, outside parties must accept whatever information the business chooses to supply for their use.
3. True. In general, the basic "ground rules" of financial accounting apply to all businesses.
4. False. While there is a similarity in the management accounting systems of most firms, all systems are not identical since each is tailored to meet the needs of the management of a specific firm.
5. True. The structure of financial accounting underlies all accounting including, of course, management accounting.
6. True. The end product of financial accounting is the balance sheet and the income statement.

An effort has been made to test the most important concepts in each frame, but this has not necessarily been accomplished in each instance. Therefore, you should use your performance on each set of questions answered as an indication of your comprehension of all of the material in a particular frame. If you missed more than one of the questions in Frame 1¹ you are encouraged to return to that frame and reread the material. This same procedure should be used throughout this programmed learning aid. When you are satisfied with your comprehension of the material in Frame 1¹, turn to Frame 2¹, page 2, and continue.

Answer frame 2¹

1. True. Management control is concerned with the ongoing operation of the business.
2. True. Accounting reports can be of assistance in informing the organization about management's plans and policies.
3. True. This is a basic responsibility of management.
4. False. While accounting information can assist in the appraisal process, employee performance cannot be properly evaluated solely from accounting data.
5. False. Forecasting involves estimating future events without attempting to influence their outcome, while planning is the process of deciding future actions and attempting to influence or alter future outcomes.
6. True. This is the definition of budgeting.

If you missed more than one of the above restudy Frame 2¹ before turning to Frame 3¹ on page 3.

Frame 3¹ continued

is not familiar with them may easily become confused or frustrated. The most common source of confusion is the word "cost."

Accounting figures should always be discussed in terms of the particular problem that they are intended to help solve, rather than in any abstract sense. A statement that "the cost of such-and-such is \$100" is not meaningful unless those who hear this statement understand clearly which of the several possible concepts of cost was intended.

Accounting Figures Are Approximations. As is the case with any *measurement* system, an accounting figure is an *approximation* rather than a precisely accurate statement. Most of the data used in the physical sciences are also measurements, and, like scientists and engineers, the user of accounting information must acquire an understanding of the degree of approximation that is present in the data.

There are many reasons for the roughness of accounting figures. One of them is simply that

a business is a complicated organism which includes vastly dissimilar elements—money, buildings, morale, machines, incentives, materials, policies, and so on. There can be no precise way of adding all these diverse elements together so as to form a completely accurate picture of the whole enterprise.

The problem of obtaining reasonably accurate measurements is further complicated by management's desire to obtain information quickly. *A rough approximation that is available today is often more useful to management than a more accurate figure published a year from now.*

The profit of a whole company cannot be determined accurately until the company goes out of business. Also, the profit of a division, a product, or other segment of a company usually cannot be measured with close accuracy. Nevertheless, management needs information on costs and profits for short periods of time, such as a month, and for individual divisions, products, or other segments of a business. Accounting will furnish such information, but management must understand that the figures are approximations.

The degree of approximation is especially high in the case of the figures used for planning purposes. Such figures are always estimates of what will happen in the future. But businessmen are not clairvoyant; they do not *know* what will happen in the future, and the figures used for planning purposes can be no better than their estimates of what the future holds.

Working with Incomplete Data. No one could ask a person to solve a problem in mathematics without furnishing him all the information he needs. By contrast, in a business problem, one almost never has exactly the information he would like to have. In nearly every practical situation, the person who is struggling with the problem can think of additional information that would be helpful if it were available. On the other hand, there are many business situations in which page after page of figures are available, but only a small fraction of them are at all relevant to the problem at hand, and perhaps none of them is quite what one needs to solve the problem.

It is a fact of life, however, that problems must be solved, business decisions must be made, and often a decision cannot be delayed until

all the pertinent information is available. One does the best he can with what he has, and then moves on to the next problem.

Figure Evidence Is Only Partial Evidence. Few, if any, business problems can be solved solely by the collection and analysis of figures. Usually, there are important factors that cannot be, or have not been, reduced to numbers. Some people act as if problems could be completely solved by numerical analysis. They have the erroneous idea that solely from a knowledge of loads, stresses, and material strengths the engineer can figure just how a bridge should look, disregarding the element of judgment completely. At the other extreme, there are those who believe that intuition is the sure guide to a sound decision, and who therefore pay no attention to the figures. The correct attitude is somewhere between these extremes.

People, Not Figures, Get Things Done. Business organizations consist of human beings. Anything that the business accomplishes is the result of the actions of these people. Figures can assist the people in the organization in various ways, but the *figures themselves are nothing more than marks on pieces of paper; by themselves they accomplish nothing.* But figures don't talk back; they give the appearance of being definite and precise, and it is a comforting illusion to imagine that the construction of a set of figures is synonymous with acting on a real problem.

An accounting system is of no use to management unless it results in action by human beings. Three companies may use exactly the same system—the same chart of accounts, the same set of records and reports, the same procedure for collecting and disseminating information—with entirely different results. In one company, the system may be *useless* because management never acts on the information collected, and the organization has become aware of this fact. In the second company, the system may be *helpful* because management uses the information as a general guide for planning and control and has educated the organization to use it in the same spirit. In the third company, the system may be *worse than useless* because management overemphasizes the importance of the figures and therefore takes unwise actions.

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True or false?

- _____ 1. Accounting information is an aid in making business decisions.
- _____ 2. Accounting is justified only to the extent it is useful to the functioning of a business.
- _____ 3. Accounting figures are often somewhat imprecise.
- _____ 4. It is difficult, if not impossible, to obtain an exact measurement of a firm's annual income.
- _____ 5. Business decisions should be deferred until all the pertinent information is available.
- _____ 6. Few business decisions are made solely on the basis of numerical information.

Now turn to Answer Frame 3¹, page 8, and compare your answers.

chapter 2

ANALYSIS OF FINANCIAL STATEMENTS

Frame 1²

All analyses of accounting data involve comparisons. An absolute statement, such as "X Company earned \$1 million profit," is, by itself, not useful. It becomes useful only when the \$1 million is compared with something else. The comparison may be quite imprecise and intuitive.

In general terms, the process of analysis can be described as one of comparing what actually happened with a *standard*. A *standard* is a *measure of what should have happened under the circumstances prevailing*.

Business Objectives

In order to decide the types of comparisons that are useful, we need first to consider what business is all about—what its objectives are—for the comparisons are essentially intended to shed light on how well business is achieving its objectives. As a generalization, it may be said that *insofar as it can be measured quantitatively, the overall objective of a business is to earn a satisfactory return on the funds invested in it, consistent with maintaining a sound financial position*.

The foregoing statement of objectives has two aspects:

1. Earning a satisfactory return on its investment.
2. Maintaining a sound financial position.

Return on Investment. The return-on-investment measure is used in two senses:

1. The return on shareholders' investment.
2. The return on total investment.

This topic is covered in more detail later.

Sound Financial Position. In addition to desiring a satisfactory return the investor expects that his capital will be protected from more than a normal amount of risk. The return on the *shareholder's* investment could be increased if a larger proportion of the investment came from long-term liabilities and net income remained unchanged. This move, however, would increase the shareholders' risk of losing their investment, since the interest charges and principal repayments on the long-term liabilities are fixed obligations and failure to make these payments when due could throw the company into bankruptcy. The degree of risk in a situation can be measured in part by the relative amounts of various types of liabilities and of the funds available to discharge them, and this also involves the use of ratios.

Some Common Ratios

A ratio is simply one number expressed in terms of another. It is found by dividing one number, the base, into the other. A *percentage is one kind of ratio in which the base is taken as equaling 100 and the quotient is expressed as "per hundred" of the base.*

Dozens of ratios can be computed from a single set of financial statements, but usually only a few are helpful in a given situation. Thus, although many frequently used ratios are described below, the best analytical procedure is not to compute all of them mechanically but rather to decide first which ratios might be relevant in the particular type of investigation being made and then to compute these, and only these, ratios.

Financial ratios can be grouped loosely into four categories:

1. Tests of *profitability*.
2. Tests of *liquidity*.
3. Tests of *solvency*.
4. *Overall* ratios.

Since the balance sheet figures refer to one instant of time while the income statement figures refer to events over a period of time, care must be taken in calculating ratios that use amounts from both statements. For many purposes, the income statement figure is best compared to the *average* of the balance sheet figure.

1. Tests of Profitability. The *gross profit percentage* indicates the average mark-on or margin obtained on products sold. Since it is an average, it does not necessarily represent the mark-on on individual products, and these may differ widely from the average.

The net income percentage is a measure of overall profitability. This measure is also referred to as the *return on sales* or the *profit percentage*. Some people, particularly critics of a given industry or company, treat this measure as if it were the most important single measure of performance. This is erroneous, because net income considered by itself does not take into account the assets employed to produce that income.

2. Tests of Liquidity. *Liquidity refers to the company's ability to meet its current obligations.* The liquidity ratios therefore have to do with the size and relationships of current liabilities, which are the obligations soon coming due, and current assets, which presumably provide the source from which these obligations will be met.

CURRENT RATIO.

$$\frac{\text{Current Assets}}{\text{Current Liabilities}}$$

The *current ratio* is the most commonly used of all balance sheet ratios. It is not only a *measure of the company's liquidity* but also is a *measure of the margin of safety* that management maintains in order to allow for the inevitable unevenness in the flow of funds through the current asset and liability accounts. Since a company rarely can count on an even flow of funds, it needs a supply of liquid funds to be assured of being able to pay its bills when they

Answer frame 3¹

1. True. Accounting information is of invaluable assistance in making business decisions.
 2. True. Accounting is not an end in itself.
 3. True. An accounting figure is often an approximation rather than a precisely accurate statement.
 4. True. A firm's profit cannot be precisely determined until it goes out of business. Stated differently, an exact determination of income is possible only for the entire life of a business.
 5. False. Often business decisions must be made on the basis of incomplete data. Many decisions cannot be delayed until all the pertinent information is available.
 6. True. Few, if any, business decisions are made solely on the basis of numerical data. Many factors which affect decisions cannot or are not reduced to numbers; therefore, the exercise of judgment on the part of the decision maker is required.
- If you missed more than one of the above, restudy Frame 3¹ before beginning Chapter 2 on page 6.

Frame 1² continued

come due. The current ratio indicates the size of this buffer.

ACID-TEST RATIO.

$$\frac{\text{Quick Assets}}{\text{Current Liabilities}} \cdot$$

Quick assets include cash, temporary investments held in lieu of cash, and current accounts and notes receivable. Presumably, these items can be converted into cash quickly and at approximately their stated amounts, unlike inventory, which is the principal current asset excluded. The *acid-test ratio*, or *quick ratio*, is therefore a *measure of the extent to which liquid resources are immediately available to meet current obligations.*

RECEIVABLES TO SALES.

$$\frac{\text{Receivables (Net)}}{\text{Net Sales}} \cdot$$

If available, the base should be net *credit* sales, which is of course more closely related to accounts receivable than is total sales. Sometimes *average* accounts receivable is used as the numerator, but attention is more properly focused on the year-end figure. Receivables include trade accounts receivable plus trade notes receivable.

COLLECTION PERIOD. This is derived from the preceding ratio:

Receivables to Sales

×

Days in the Period

=

Collection Period

The collection period can be related roughly to the credit terms offered by the company. A rule of thumb is that the collection period should not exceed 1½ times the regular payment period; that is, if the company's typical terms call for payment in 30 days, it is said that the average collection period should not exceed 40 days. Changes in the ratio indicate changes in the company's credit policy or changes in its ability to collect its receivables.

INVENTORY TURNOVER.

$$\frac{\text{Cost of Sales}}{\text{Average Inventory}} \cdot$$

Inventory turnover is an indication of the velocity with which merchandise moves through the business. An increase in the absolute size of inventory, for example, may represent the additional stocks required by an expanding business, or it may represent an accumulation of merchandise because sales volume has recently declined. In the latter case, the inventory turnover will decrease. A decrease in the inventory turnover ratio may therefore be a significant danger signal.

State whether each of the following is true or false.

- _____ 1. An accounting figure is most useful when it is compared with another figure.
- _____ 2. The gross profit percentage indicates the "mark-on" on individual products sold by the business.
- _____ 3. The current ratio is probably the most frequently used balance sheet ratio.
- _____ 4. Inventory is excluded from the calculation of the "quick" or "acid-test" ratio.
- _____ 5. The collection periods of all companies are uniform.
- _____ 6. The number of times the inventory "turned over" (was sold) during the period may be calculated by dividing sales by the average inventory.

Turn to Answer Frame 1², page 10, and check your answers.

Frame 2²

3. Tests of Solvency. As liquidity refers to current obligations, *solvency refers to a company's ability to meet the interest costs and repayment schedules associated with its long-term obligations.*

EQUITY RATIOS. The division of equities among current liabilities, long-term liabilities, and owners' equity has an important bearing on solvency.

The most important of the equity ratios are those showing the relationship between *debt capital* and *equity capital*. Debt capital is another name for liabilities. From the point of view of the company, debt capital is risky because if bondholders and other creditors are not paid promptly, they can take legal action to obtain payment which can, in extreme cases, force the company into bankruptcy. Equity capital is much less risky to the company because stockholders receive dividends only at the discretion of the directors.

From the company's standpoint, the greater the proportion of its capital that is obtained from stockholders, the less worry the company has in meeting its fixed obligations; but in return for this lessened worry, the company must expect to pay a higher overall cost of obtaining its capital. Conversely, the more funds that are obtained from bonds, the more the company can *trade on the equity*; that is, it can use funds obtained at relatively low interest rates in the hopes of

earning more on these funds for the stockholders. *A company with a high proportion of bonds is said to be highly leveraged.* The equity ratio shows the balance that the management of a particular company has struck between these forces.

TIMES INTEREST EARNED.

$$\frac{\text{Operating Profit}}{\text{Bond Interest}}$$

The numerator of this ratio is the amount of earnings available to meet the fixed obligation of bond interest. This ratio is *a measure of the level to which income can decline without impairing the company's ability to meet interest payments on its fixed liabilities.* Income is taken before income taxes because if income declined, income taxes would decline proportionately. The ratio implies that net income is equivalent to additional cash, which is not necessarily the case, of course.

If preferred stock is outstanding, a similar coverage ratio can be computed for the preferred stock dividends, but here the numerator is income after taxes and after interest charges.

A company may have fixed obligations in addition to its interest payments, as, for example, when it has rental commitments on leased property. In such a case coverage is properly computed by adding these other obligations to the