

A MANAGERIAL APPROACH TO THE PRICE LEVEL
PROBLEM IN ACCOUNTING

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PREFACE

Few, if any, financial statements are prepared in accordance with generally accepted accounting principles that are not distorted to some extent by changes in the price level. Accounting assumes the dollar to be a stable measuring unit and such is not the case. As the price level increases the dollar commands fewer goods and services, this is referred to as a loss in the dollar's purchasing power. Contrary to the accountant's traditional procedure, dollars from different periods in time are, in fact, nonadditive in that they are not expressed in terms of a common denominator.

Accountants are not unaware of the problems they face in regard to changing price levels. This is apparent from the many articles concerning various aspects of the price level problem appearing in their journals. A great deal of the articles concentrate their attention on the methods of adjustment and the disclosure of the adjusted data. I submit that maybe we have "the cart in front of the horse," so to speak, regarding the development of this problem area. That is, should we not first explore the uses and limitations of the adjusted data? If we then believe the adjusted data have a positive net value, we should attempt to refine a method that would produce accurate data. A positive net value implies the obvious fact that the data should be of more value than the cost incurred in obtaining it.

It might forcefully be argued that it will be impossible to estimate either the cost or value of the adjusted information before the

techniques of adjustment are refined. Recognizing the merit in such an argument, it is, nevertheless, the opinion of this writer that the development of adjustment techniques has progressed to such a point that we must consider the uses of the adjusted data before we proceed to further refine existing techniques.

The problem of managerial uses and limitations of accounting data adjusted for price level changes has been neglected in the literature. It is this problem area that will receive the bulk of my efforts here. It is hoped that the reader will also gain considerable insight into the nature of the problem and the importance of the adjustment process.

While the problem examined here is frequently thought to be one of accounting, it is, in the opinion of this writer, much broader than accounting. In fact, an adequate solution to the problem may well touch upon all of the functional areas of business.

The reader should very carefully note the distinction drawn between financial accounting and management accounting in the early pages of the text. This distinction and the subsequent identification with management accounting should be constantly in the reader's mind as he proceeds through the following pages.

It is my opinion that while accounting data properly adjusted for price level changes hardly represent a universal panacea for business, they are, when complemented with conventional accounting data, an extremely useful managerial tool.

A number of people were helpful in the preparation of this report. Special acknowledgement is due Dr. Milton Usry of the Oklahoma State University Department of Accounting. His help and availability have been most valuable in the preparation of this report. Dr. James Jack-

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CHAPTER I

INTRODUCTION TO THE PROBLEM

The fact that prices tend to change over time is well known and needs no elaboration. However, for the purposes of this paper a distinction must be drawn between general price changes and specific price changes. This is so because they represent quite different economic phenomena.

General price changes indicate a change in the value of money. That is, after a general price change the dollar commands a different quantity of goods and services than it did prior to the general price movement.

Changes in relative prices may or may not indicate a change in the value of money. Specific price changes reflect a change in the supply and demand forces that direct the allocation of the economy's resources.

Over a given period of time the prices on specific items will increase, decrease, or remain constant. While the prices on specific items may change in a diverse manner, it is generally possible to detect a trend that expresses the net movement of all items considered. The location of the detected trend relative to the base period selected is referred to as the "price level" and the movement is referred to as a "price level change."

Prices existing at different points in time may be compared singularly or as a group by the use of price index numbers. Quite briefly, the computational procedure for deriving an index number is as follows:

(1) select the items to be included in the study, (2) select a base period, (3) divide each item's price at the time of the base period by the price for the same item in the period under consideration and multiply the quotient of this operation by 100, and (4) devise an appropriate method of averaging the price index of each item included in the computations. The result of the averaging process is the price index for the group of items and the result of step 3 is the price index for each specific item included.

It is also possible to compute the changes (as measured by a given price index) in the purchasing power of money. The purchasing power computed is actually a percentage of purchasing power relative to a given base period whose purchasing power is set equal to 100. The purchasing power figure may be obtained by dividing 100 by the relevant price index number and multiplying the quotient by 100. The figures appearing under the purchasing power column in Table I were obtained in the manner described. This table is offered as evidence that the changes in the purchasing power of the dollar have been significant.

As the price level moves upward, the purchasing power of the dollar (as measured by the index used) is declining. As the given price level declines the purchasing power of the dollar (as measured by a given index) is greater than it was prior to the movement.

Distinction Between Financial and Management Accounting

For purposes of financial accounting, changes in the purchasing power of the dollar are not recognized in the accounts. Accounting assumes a stable dollar primarily for reason of objectivity. This paper, however, is not concerned with financial accounting. Rather, it is

TABLE I

PURCHASING POWER OF THE DOLLAR: 1940 to 1964

(1954=100. Purchasing power obtained by computing reciprocals of the implicit price deflators for gross national product.)

Year	GNP Price Index	Purchasing Power	Year	GNP Price Index	Purchasing Power
1940	48.9	204.5	1952	98.1	101.9
1941	52.9	189.0	1953	99.0	101.0
1942	59.6	167.8	1954	100.0	100.0
1943	64.9	154.1	1955	101.2	98.8
1944	66.5	150.4	1956	104.6	95.6
1945	68.0	147.1	1957	108.4	92.3
1946	74.6	134.0	1958	110.8	90.3
1947	83.0	120.5	1959	112.6	88.8
1948	88.5	113.0	1960	114.2	87.6
1949	88.2	113.4	1961	115.8	86.4
1950	89.5	111.7	1962	116.7	85.7
1951	96.2	104.0	1963	118.5	84.2
			1964	120.7	82.9

Source: Economic Report of the President (United States Government Printing Office, 1965), p. 196.

concerned with that portion of accounting that seeks to aid management in the decision making process--management accounting. Management accounting differs in a number of ways from financial accounting but the differences are largely those of viewpoint and purpose. The viewpoint of financial accounting is that of an individual external to the operating firm, and its purpose is basically that of reporting on the stewardship of management. This information, while informative, is not considered adequate as a basis for managerial decision making. It is in this void that management accounting exists. Its viewpoint is that of internal management and its purpose is to provide management with accounting data suitable for decision making purposes at a cost less than

the value of the information.

Financial reports prepared for managerial use may differ in a number of ways from those reports prepared in accordance with traditional financial accounting standards. It is generally true that financial accounting reports must be prepared in "accordance with generally accepted accounting principles," while management reports may be prepared in any feasible manner deemed useful. One such difference in the two reports might well be the manner in which the various accounts are expressed in the reports. That is, financial accounting assumes that the dollar is a stable unit of measurement; whereas, management accounting may adopt any method available to adjust the monetary unit or leave it as it is. One purpose of this paper is to point out the limitations of the dollar as a unit of measurement for decision making purposes, and another is to suggest ways in which management might effectively use accounting reports based upon adjusted dollars that represent equal purchasing power.

Table I indicated that the dollar's purchasing power does not remain fixed over time, but changes frequently. This leads one to consider the following subject.

Money as a Common Denominator for Management Accounting

Economic activities are expressed in terms of a standard of value known as money. In the United States the standard is the dollar. Although the dollar might appear at first glance to have the characteristics of other standards, a closer examination will readily reveal that the dollar is unique as a standard. Other standards remain constant over time but the dollar does not. For example, a pound of gold

in 1849 would be identical in weight to a similar amount today, but the dollar's purchasing power in 1849 was quite different from that of today. It is this instability of purchasing power that led Sweeney to term our monetary unit the "rubber dollar."¹ Obviously the value of money is not in the number of physical dollars held, but in the purchasing power of those dollars.

A useful analogy can be drawn between price level adjustments and the conversion of foreign currencies. It would not occur to anyone to add amounts stated in pounds, pesos, francs, or even Canadian dollars to amounts stated in United States dollars without first converting the foreign currencies with the use of appropriate exchange rates. Yet we are in the habit of treating dollars of different years as identical even though, like the foreign currencies, they represent different amounts of goods and services and should be converted to a constant dollar basis in order to make them comparable.²

Clearly the monetary unit is not an optimum standard for the expression of financial data, but one must choose a common denominator from the available alternatives and it "...is virtually the only available accounting unit or symbol...."³ For purposes of management accounting this monetary unit may be modified by a number of methods which will reduce the deficiency of the dollar as a standard of measurement. A method of adjustment that compensates for the general effect of price level changes on the purchasing power of the dollar and some uses of this adjusted data by management will be presented in the following pages.

¹Henry W. Sweeney, Stabilized Accounting (New York, 1936), p. xi.

²Perry Mason, Price-Level Changes and Financial Statements (American Accounting Association, 1956), p. 10.

³Paul Grady, ed., Memoirs and Accounting Thought of George O. May (New York, 1962), p. 297.

CHAPTER II

EFFECTS OF THE PROBLEM

In this, and the remaining sections of this paper, the reader will frequently confront statements referring to "the problem." For the purposes of clarity and brevity "the problem," unless otherwise noted, refers to both the trend of rising price levels and the inability of the unadjusted monetary unit to express the resulting changes in its purchasing power.

In the following sections the reader will be exposed to a variety of possible managerial ramifications of the aforementioned problem.

The Income Statement

Assuming that price levels have changed between the time assets were secured and the date of the income statement, what is the resulting impact on reported net income? Before attempting to deal with this query an examination of some aspect of the problem of income measurement will be made. The accountant defines income as the difference between revenues and the sum of expenses and losses associated with the earning of those revenues. The difficulty is that of finding the true difference between items that are not expressed in terms of a constant standard.

Unless rapid changes have occurred in the value of the dollar, revenue accounts are, for all practical matters, expressed in terms of the current period. However, "...cost expirations are measured in dol-

lars which have changed in size."¹ Adding to the inaccuracy of the statement is the fact that unrealized gains or losses resulting from changes in purchasing power are not included in the calculation. In a following section there will be a discussion of net monetary position which is concerned with these unrealized changes in the entity's purchasing power. Thus, conventional accounting practice is to compute net income by expressing revenue in terms of current dollars and subtracting from this figure expenses which are frequently derived from outlays of a prior period. These expenses are recorded at cost in terms of the dollar of that particular period and tend to be lower in terms of the stated dollar because of the dollar's greater purchasing power in prior periods. Under these conditions reported net income tends to exceed real income. Bierman has speculated as follows:

There have been few years in which price fluctuations have not significantly distorted the corporate income reports prepared in accordance with generally accepted accounting procedures.²

Thus, it is clear that the accuracy of the conventional income statement is reduced by changing price levels.

The Balance Sheet

An objective of the balance sheet is to show not only the financial position of the firm at a particular point in time, but also to show the relative interests of the firm's creditors and stockholders. These, of course, are not the only objectives of the balance sheet, but are the

¹Donald A. Corbin, Accounting and Economic Decisions (New York, 1964), p. 242.

²Harold Bierman, Jr., Managerial Accounting (New York, 1959), p. 453.

most relevant for purposes of this discussion. It is commonly recognized by well informed people that the balance sheet does not attempt to reflect current replacement costs or market values. Nevertheless, there seems to be no reason why an attempt should not be made to express all of the accounts in terms of the same size dollars. The usefulness of the conventional statement is a hodge-podge of figures expressed in terms of an uncommon denominator and "...does not result in a meaningful sum."³

The conventional balance sheet does not satisfy the above objective because of two main distorting factors.

First, the emphasis on the income statement has led to acceptance of some arbitrary procedures such as "last-in, first-out," which make the residual balance-sheet valuations purely arbitrary amounts. In many cases it may become impossible to identify the residual valuations with any specific costs. Second, price-level changes result in the addition of amounts expressed in dollar valuations of the year for which the statement is prepared and amounts expressed in dollar valuations of prior periods. This addition of items, expressed in dollars of different purchasing power, leads to a confusion in the meaning of the resulting sum.⁴

Financial Ratio Analysis

Management, bankers, mercantile credit managers, and security analysts apply various methods of ratio analysis of financial statements in an attempt to secure meaningful data on which decisions may be based. While some well founded criticism has been directed at this method of analysis, both the weaknesses and strengths of the method are largely outside the scope of this paper. The following analysis presupposes the

³Eldon S. Hendriksen, Price Level Adjustments of Financial Statements (Pullman, 1961), p. 7.

⁴Ibid.

the fact that ratios are considered quite important to a large number of people.

Financial ratios express relationships between specified accounts that appear on the balance sheet and/or the income statement. It was earlier concluded that accounting figures expressed in dollars of different years are not comparable. This non-comparability of dollar figures appearing on both the conventional balance sheet and income statement will distort any relationship that otherwise might accurately be expressed by ratio analysis. The degree to which this will hinder a firm will depend upon the extent to which conventional ratio analysis is relied upon in the decision making process of individuals, both within and outside the firm, and the direction of distortion.

Return on Investment

Return on investment is computed by dividing net income by either owner's equity, total tangible assets, or some other balance sheet figure deemed appropriate for the particular purpose at hand. Expressed in terms of a percentage, this ratio presumably depicts the extent to which management has effectively utilized the resources of the firm in the pursuit of the firm's objective--profitability.

The rate of return computed is commonly compared against standards for purposes of analysis. These standards are often the firm's past years' performance, the return of other firms in the same industry, and the so-called "going rate" in the economy. As previously mentioned, in times of a rising price level, net income tends to be overstated. Balance sheet asset accounts, with the exception of current ones, will tend to be understated because the dollar amounts presented are in

terms of a prior period when the purchasing power of the dollar was greater. Again the weakness of the dollar as a common denominator for economic activity is apparent. In times of changing price levels the computation is in fact a comparison of dissimilar items.

The standard, whether it is the firm's return in prior years or that of other firms, is subject to question. The practice of comparing the figure with that of other firms has two definite weaknesses. In the first place, the firm whose rate of return serves as the standard probably did not secure its assets at the same price levels, and therefore, the asset values are expressed in terms of dollars of a different size. Second, profitability is relative to the risk that the firm is willing to assume. Unfortunately, the assumption of risk is not a factor in the measurement of return on investment.

If this measure of profitability is to have significant value, it must be computed with figures that are adjusted for price level changes.

Net Monetary Position

The simple-minded notion has been advanced that changes in the price level are not significant to society because everybody will simply handle more or less money. The fallacy of this line of thinking is that quite obviously relative positions are not maintained in times of changing price levels; certainly they are not maintained in periods of hyperinflation. Relative positions are not maintained for the reason pointed out below.

The amount of a monetary item is fixed by a legal means. That is, changing price levels do not affect the amount of the asset or liability. Those individuals or firms that hold monetary assets (e.g., notes

receivable) in excess of monetary liabilities (e.g., notes payable) are termed "net monetary creditors." Conversely, if the opposite situation prevails the entity is a "net monetary debtor." Those entities who are net monetary debtors will benefit from an upward movement in the price level while those who are net monetary creditors will be injured by an upward movement. In the event of a falling price level the net monetary debtors would lose and the net monetary creditors would gain.⁵

⁵J. Fred Weston, "Toward Theories of Financial Policy," Journal of Finance, X (May, 1955), p. 134.

CHAPTER III

A METHOD OF ALLEVIATING THE PROBLEM

Concepts of Capital Maintenance

Real income may be defined as the increased value of a firm's assets during an accounting period plus distributions of income made during the accounting period in the form of dividends or withdrawals. Inherent in such a concept of income is the idea that capital must be maintained before there can be any real income. In this section an examination and appraisal will be made of the various concepts of capital maintenance.

Sweeney¹ discusses four concepts of capital maintenance: (1) the maintenance of relative capital, (2) the maintenance of actual physical, material capital, (3) the maintenance of nominal capital, and (4) the maintenance of real capital. If the first viewpoint is adopted, the object is to preserve the firm's capital in an amount proportional to the aggregate capital of the society when the investment in the firm was made. This concept is considered unrealistic in that firms are established not to compete for relative shares of the total wealth, but to obtain greater command over economic goods than the owners previously had. According to the second view, capital maintenance denotes the

¹Henry W. Sweeney, "Maintenance of Capital," The Accounting Review, V (December, 1930), pp. 277-87.

maintenance of the same amount of physical objects over the life of the firm. Sweeney rejects this concept because it is not considered compatible with the objective of most business activity, that is, to "...maintain original purchasing power over the general field of goods and services while, in the long run, acquiring more."² The third concept, the maintenance of nominal capital, is in accord with traditional accounting theory and has been previously mentioned in this paper. The maintenance of nominal capital refers, of course, to stated capital which is expressed in dollars irrespective of their purchasing power. Sweeney's fourth concept, the maintenance of real capital, is based upon an evaluation of the accountant's yardstick, i.e., the dollar, rather than merely a money unit measurement. This last concept may be subdivided into two parts: (1) maintenance of the original amount of purchasing power of the invested capital as measured by a specific, rather than general, price index, and (2) maintenance of purchasing power in general as measured by an index that is broad in nature and believed to reflect changes in the value of the dollar in general.³

From Sweeney's four broad concepts of capital maintenance it is not difficult to see that the last concept, that of maintaining real capital, is the most relevant in the United States economy. However, the concept described above is much too broad for use as a guide in the selection of a suitable price index. It is clear that the concept of real capital maintenance refers to the maintenance of purchasing power, but whose

²Ibid., p. 279.

³Delmas D. Ray, Accounting and Business Fluctuations (Gainesville, 1960), p. 22.

purchasing power shall be maintained? In terms of what shall this purchasing power be maintained?

To avoid obscurity in the reader's mind, Table II has been developed from an article by Eldon S. Hendriksen.⁴ The reader is reminded that no attempt is being made to set forth which of the following concepts are right or wrong. Instead, the purpose of this discussion and the accompanying table is to aid in the identification of a concept that is in agreement with the reader's hypothesis of capital maintenance. It will be seen that each assumption in Table II dictates the nature of the purchasing power that is to be maintained and further, that the objective to be maintained implies the make-up of the price index to be used.

It should be noted that the capital maintenance problem may be a result of either general or specific price changes depending upon the particular concept of capital maintenance adopted.

Readily Available Price Indices

As suggested earlier, the concept of capital maintenance adopted will serve as a guide in the selection of the price index used in the adjustment process. That is, a price index should be chosen that is compatible with the capital maintenance concept employed. In the determination of compatibility between a given index and a given capital maintenance concept the following problem areas should be examined: (1) the purpose of the index, (2) the items included in the computation of the index, (3) the weights assigned to the various items included,

⁴Eldon S. Hendriksen, "Purchasing Power and Replacement Cost Concepts--Are They Related?," The Accounting Review, XXXVIII (July, 1963), pp. 483-91.

TABLE II

CONCEPTS OF REAL CAPITAL MAINTENANCE

Frame of Reference	Objective to be Maintained	Basic Assumption	A Compatible Price Index
1) Stockholder	investment in terms of power to purchase consumer goods	the firm will liquidate at some future date and owners will consume the proceeds of the liquidation	Consumer Price Index or Gross National Product Implicit Price Deflators
2) Stockholder	general purchasing power	the stockholder had a free choice to spend his money in the economy any way he wished at the time of his investment and that, when the capital is recovered through the sale of the firm's product or service, the investor will again have the free choice to spend his money any way that he wishes	Gross National Product Implicit Price Deflators
3) the Firm	the ability to reinvest in an equal quantity of investment goods in general	the firm will continually reinvest in capital assets, although not necessarily in assets of one particular industry	no readily available price index

TABLE II (Continued)

Frame of Reference	Objective to be Maintained	Basic Assumption	A Compatible Price Index
4) the Firm	the ability to reinvest in capital goods of the same industry	the firm will continually reinvest in capital assets of the same industry, although not necessarily in the same types of assets as previously	Specific Industry Price Indices
5) the Firm	the ability to perpetually replace plant and equipment and other assets with those of a similar type	investment resources, once committed to a specific investment project tend to be reinvested continually in a similar asset	Replacement Cost Indices

and (4) the mechanics of the computational procedure. The following price indices relate to the capital maintenance concepts appearing in Table II.

It should be noted that index titles do not always accurately describe the true nature of an index.

The Consumer Price Index (CPI)

The CPI is computed monthly by the United States Department of Labor's Bureau of Labor Statistics and is reported by several sources. Among the sources are: (1) Consumer Price Index (U. S. Department of Labor), (2) the Monthly Labor Review (U. S. Department of Labor), and Economic Indicators (Council of Economic Advisers). The express purpose of the CPI is to measure average changes in prices of goods and services usually bought by urban wage earners and clerical workers, both families and single persons living alone.

The CPI is widely accepted as a measure of price changes in consumer goods. It is readily available and presumably of sound construction. It should, however, be realized that the CPI has some serious limitations.

It covers only middle-income families living in both large and small cities across the nation; no rural areas are included. It measures not the true cost of living, but rather the cost of a particular way of life. And, too, the contents of the statistical "market basket" probably change more slowly than actual consumer spending patterns.⁵

Perhaps the most serious limitation of the CPI as an index of the general level of prices is the narrowness of its scope. As the preced-

⁵"The Consumer Price Index: Everybody Talks About It, But Few Know What It Is," Forbes, LXXXII (September 15, 1963), p. 38.

ing quotation points out, the index does not purport to measure changes in the purchasing power of the dollar in general, but only changes directly related to the typical expenditures of a relatively small class of citizens. The reader may then wonder why Jones⁶ and others have advocated the use of the CPI as an index to measure the general price level when its purpose is so much narrower. The reason is, of course, that one must select a course of action from his perceived alternatives and the CPI is often thought to be superior to other alternatives. "It must be emphasized that there is no index which measures the general price level."⁷ Apparently there is no significant effort on the part of private enterprise to compile a general price index.

The Wholesale Price Index

The Wholesale Price Index, prepared by the U. S. Bureau of Labor Statistics, is the oldest of the American price indices. The purpose of this index is to measure average changes in prices of all commodities sold in primary markets of the United States.

Earlier mention was made of the fallacy of judging the applicability of an index on the basis of its title alone. The wholesale price index is clearly an example of an index not completely described by its title. For in fact, the prices described by the wholesale price index are not those prices charged by wholesalers as the term is generally used in marketing, but the prices quoted in the primary market.

⁶Ralph C. Jones, Effects of Price Level Changes on Business Income, Capital, and Taxes (American Accounting Association, 1956), p. 179.

⁷Myron H. Ross, Income: Analysis and Policy (New York, 1964), p. 13.

A primary market refers to the first level of commercial transactions where sales are ordinarily in large lots. Frequently the price utilized is that quoted by the producer to customers in his most predominant channel of distribution. A sample of approximately 2,200 items serve as a sample to represent average price changes in the primary markets.

At first blush, one might think the Wholesale Price Index to be ideal for measuring changes in the purchasing power of business firms. More specifically, a superficial study of the index might indicate that it is nearly optimal for purposes of measuring changes in a manner compatible with capital maintenance concept number three (capital maintenance concept number three refers to the maintenance of the firm's ability to reinvest in an equal quantity of investment goods in general). However, as pointed out by Hendriksen,⁸ the Wholesale Price Index has major weaknesses. These limitations should be known regardless of whether or not the index is deemed satisfactory. First, the index does not include the prices for wages and services. Nor does it include commodities representative of those usually purchased by either an industrial, retail, or utility corporation. Second, the investment of most firms is largely made up of plant, equipment, and inventory. The Wholesale Price Index is not greatly concerned with investment goods of this nature and is a poor measure of their price changes.

Specific Industry Price Indices

A price index prepared for purposes of measuring the price changes

⁸Eldon S. Hendriksen, Price-Level Adjustments of Financial Statements (Pullman, 1961), p. 54.

of capital assets prevalent in a particular industry is desirable if capital maintenance concept number four is embraced. This concept seeks to maintain the firm's ability to reinvest in those capital assets that are prevalent in a particular industry. Indices of this sort are presently being prepared by several private agencies. For example, Engineering News-Record computes a price index of construction costs for each weekly issue of the magazine. "The ENR Construction Cost Index ..." is "...based on 20 cities average cost of common labor, structural steel, cement and lumber...."⁹ It should, of course, be noted that the ENR Construction Cost Index does not measure changes in the prices of industrial equipment. Thus the index is not suitable for adjustments of the accounts unless one has access to an equipment cost index for the relevant industry.

Equipment cost indices are also prepared by private agencies such as Marshall and Stevens.¹⁰ A satisfactory price index may be derived for a specific firm by combining relevant indices and weighting each in proportion to the average total investment in assets related to each particular index. The derivation of a satisfactory price index by this method may not be possible in some instances because of unavailability of an appropriate industry index and the impossibility of fitting some enterprises neatly into any single industry classification.¹¹

⁹"ENR Cost Index Rises to Set Another Record," Engineering News-Record, November 5, 1964, p. 62.

¹⁰Poor's Register gives Marshall and Stevens' current address as 1645 Beverly Blvd., Los Angeles 26, California. The firm's business is listed as "publisher of trade publications."

¹¹Hendriksen, p. 56.

The Gross National Product Implicit Price Deflators

The GNP Implicit Price Deflators are a product of the U. S. Department of Commerce's efforts to express GNP in real terms, i.e., unaffected by changes in the price level. Briefly, the process is to break GNP into its various components and deflate each by its appropriate price index. The summation of these components, expressed in real terms, constitutes real GNP. The next step is to divide real GNP into GNP in current dollars, the quotient of this operation is the GNP deflator. "It is an implicit price index because it is not derived directly."¹²

The GNP implicit price indicators find their primary value as an index reflecting changes in the value of the dollar. Because of the broad scope of the index, it is commensurate in concept with capital maintenance concept number two, this concept attempts to maintain the general purchasing power of the stockholder. However, like the indices previously examined, the GNP implicit price indicator is not without its limitations.

The index is estimated on a quarterly basis; seemingly this would not be as desirable as a monthly index, but may prove adequate for many firms. Whether the index is, in fact, inadequate because of the infrequency of the computation may only be determined by each individual firm.

Replacement Cost Indices

If capital maintenance concept number five is most nearly in accord

¹²Ross, p. 37.

with the firm's concept of the capital-reinvestment process in the economy, then a specific replacement cost index is the most relevant measure of changes in the dollar's purchasing power. That is, if the firm seeks to maintain its ability to replace plant and equipment with similar asset then a specific replacement cost index of these assets would be the most relevant. This index may be applied to seemingly homogeneous groups of assets or to single assets.

The index describes the relationship of prices for specific types of assets at different points in time. No attempt is made to forecast the price that will be in force when the particular asset is to be replaced, but rather the relevant price is the current price of replacement. It is interesting to note that changes in either specific or general prices are equally applicable in the determination of a replacement cost index.

The replacement cost index has limitations separate from those limitations that are a result of the nature of capital maintenance concept number five. An apparent limitation of the index is the cost of computing a separate index for each markedly different type of asset. Also, the futility of attempting to determine a price index for assets no longer marketed is obvious. The problem resulting from technical changes in the particular type of asset should properly be viewed as a limitation of capital maintenance concept number five, rather than the specific replacement cost index.

Flow Charts of the Adjustment Process

The purpose of this section is to help the reader develop a concept of the adjustment technique. The flow charts that comprise Figures II

through VI represent a simplified illustration of the adjustment process. It is not intended that the flow charts serve as a detailed guide for the accountant in his adjustment of conventional financial statements.¹³ It is felt, however, that by carefully surveying the flow charts the casual reader may gain insight and develop an adequate concept of the technique by which he may fairly evaluate the uses of the adjusted data.

The various flow charts presented were developed largely by a thorough examination of the procedures outlined in the AIPA's Research Study Number 6.¹⁴ The information presented in the remaining pages of this chapter was to a large extent gleaned from this excellent study. This general citation will serve the same function as the innumerable footnotes that would have otherwise been necessary had the general citation not been employed.

The hypothetical situation that the flow charts depict is one in which the firm has just completed its first year in operation. Our task is to restate the financial statements in terms of the dollar at

¹³A reader with sufficient interest might secure one of the following publications which discuss the technical aspects of the adjustment process:

Eldon S. Hendriksen, Price Level Adjustments of Financial Statements (Pullman, 1961).

Ralph C. Jones, Effects of Price Level Changes on Business Income, Capital, and Taxes (American Accounting Association, 1956).

Perry Mason, Price-Level Changes and Financial Statements (American Accounting Association, 1956).

¹⁴Reporting the Financial Effects of Price-Level Changes, Accounting Research Study Number 6 (American Institute of Certified Public Accountants, 1963), p. 138.

the end of the fiscal period.

Other assumptions are:

1. All revenue and expenses, except for depreciation and that portion of the cost of goods sold represented by the beginning inventory, are earned or incurred evenly throughout each fiscal year, i.e., in effect, the transactions occur at the average price level of the year.

2. All acquisitions of plant and equipment take place at the opening of the business. The land on which the plant is located is held under a lease, so all items of plant and equipment are subject to depreciation. Depreciation is computed on a straight-line basis and is expressed as a percentage.

The Relationship Between Accounting Income Adjusted for Price Level Changes and Real Economic Income

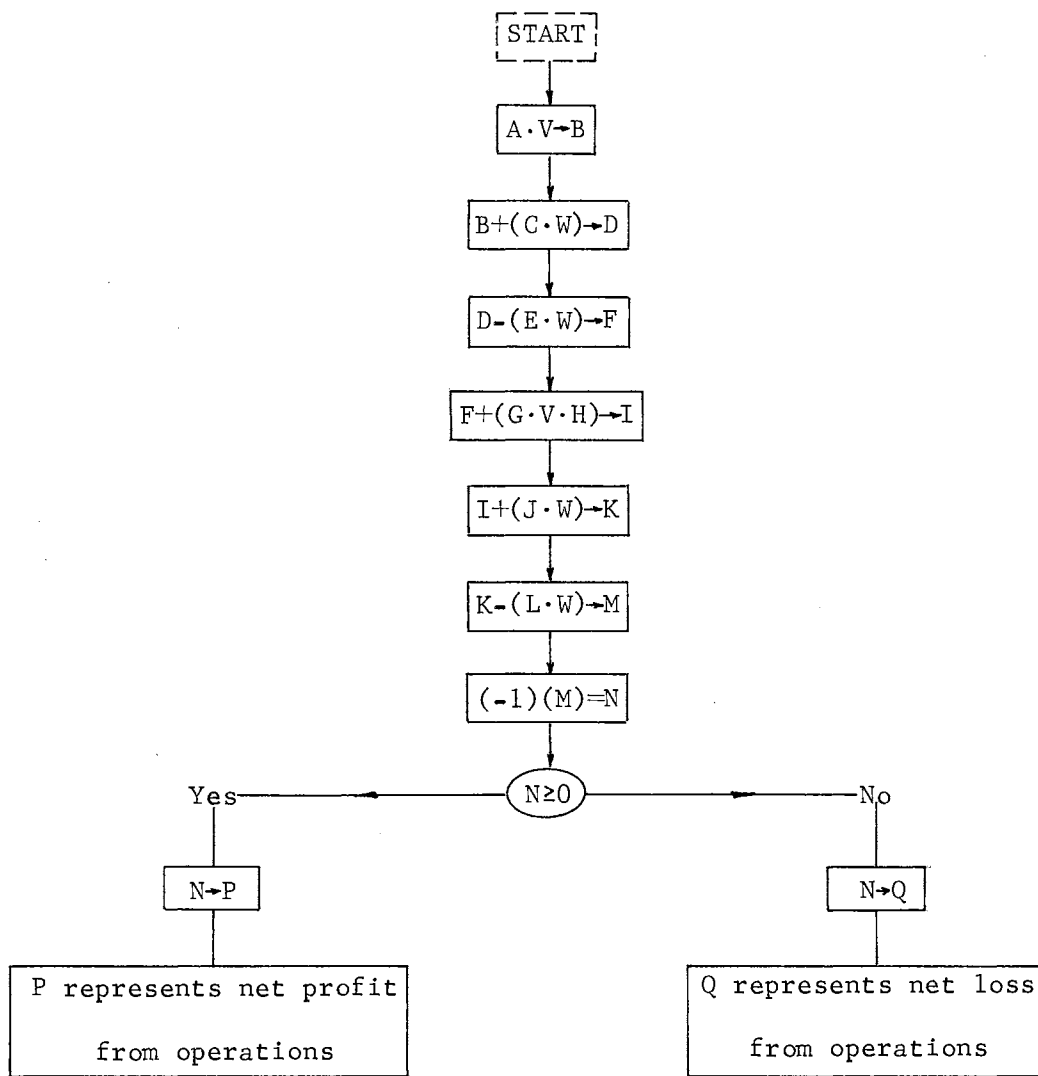
Real economic income,¹⁵ as the term is used here, refers to the increase in value of a firm's assets during the accounting period plus distributions of income made during the period in the form of dividends or withdrawals. It should be noted that an "increase in value" will be expressed in terms of the incremental amount of economic goods obtainable as a result of the income generated from the firm's assets.

Accounting income is not expressed in terms of the increased command over economic goods, but in terms of dollars. For purposes of financial accounting the dollar is assumed to be a stable measuring unit.

¹⁵A theoretical discussion of real income may be found in Edgar O. Edwards and Philip W. Bell, The Theory and Measurement of Business Income (Berkeley, 1961).

FIGURE I

PROFIT OF LOSS FROM OPERATIONS



CODE OF ACCOUNTS

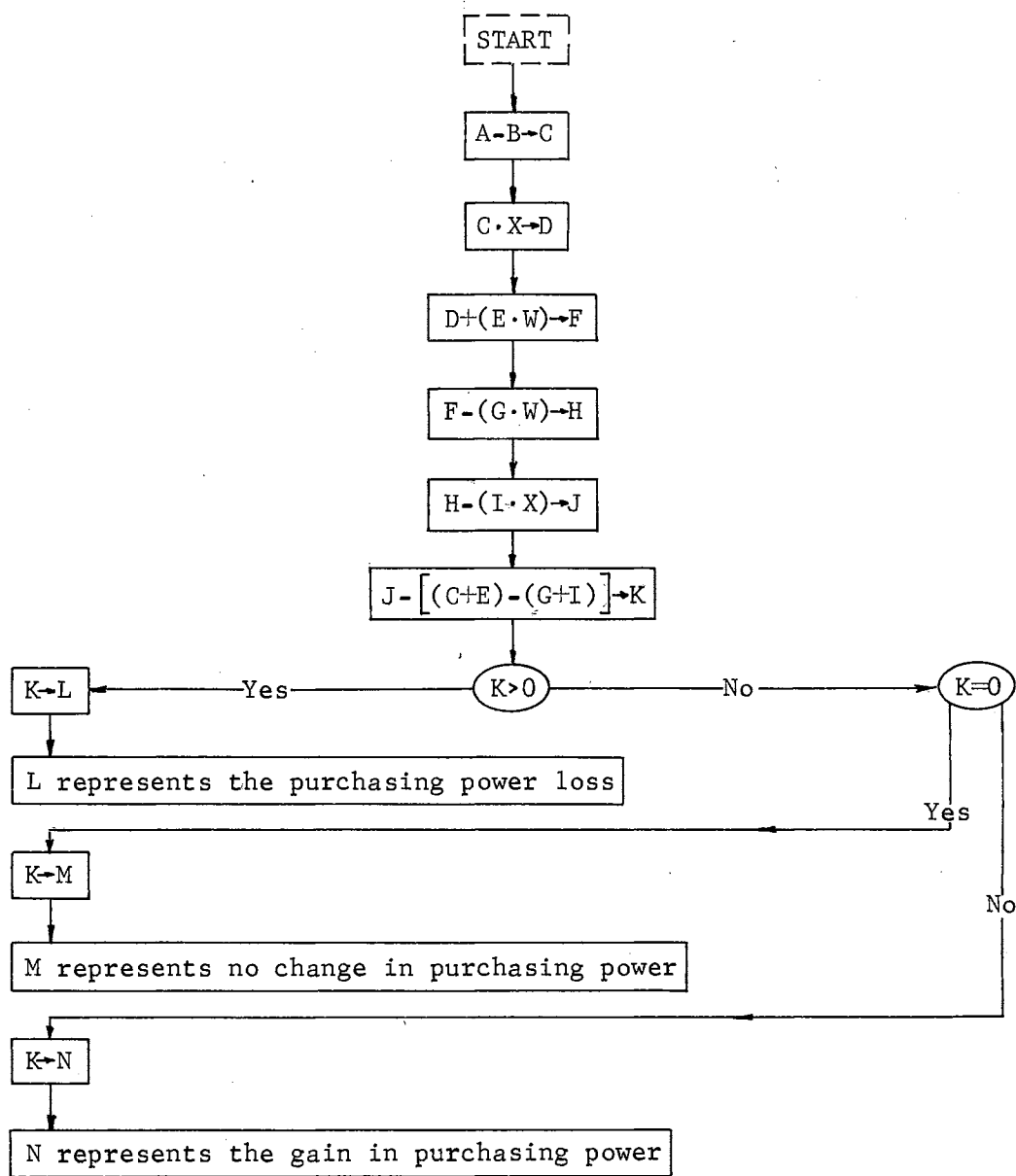
- A=beginning inventory
- C=purchases
- E=ending inventory
- F=cost of goods sold
- G=plant and equipment
- H=normal depreciation rate
- J=other expenses
- K=total operating expense
- L=sales

APPROPRIATE INDEX

- $V = \frac{\text{first year--end}}{\text{opening of business}}$
- $W = \frac{\text{first year--end}}{\text{first year--average}}$
- $X = \frac{\text{first year--end}}{\text{first year--end}}$

FIGURE II

NET CURRENT MONETARY CHANGES



CODE OF ACCOUNTS

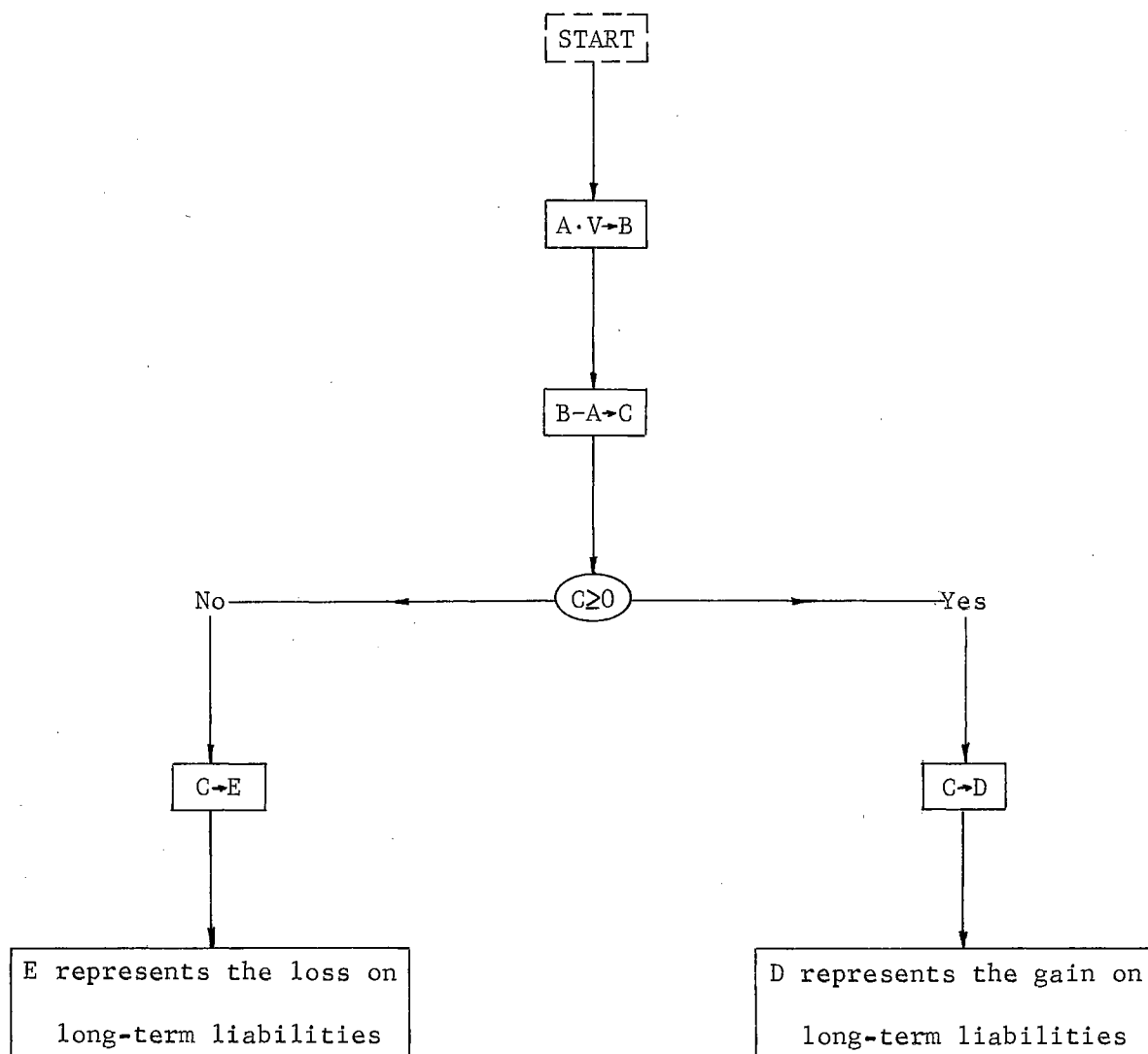
A=monetary assets
 B=monetary liabilities
 C=net monetary assets
 E=sales
 G=purchases and other expenses
 I=dividends

APPROPRIATE INDEX

$W = \frac{\text{first year--end}}{\text{first year--average}}$
 $X = \frac{\text{first year--end}}{\text{first year--end}}$

FIGURE III

LONG-TERM LIABILITIES



CODE OF ACCOUNTS

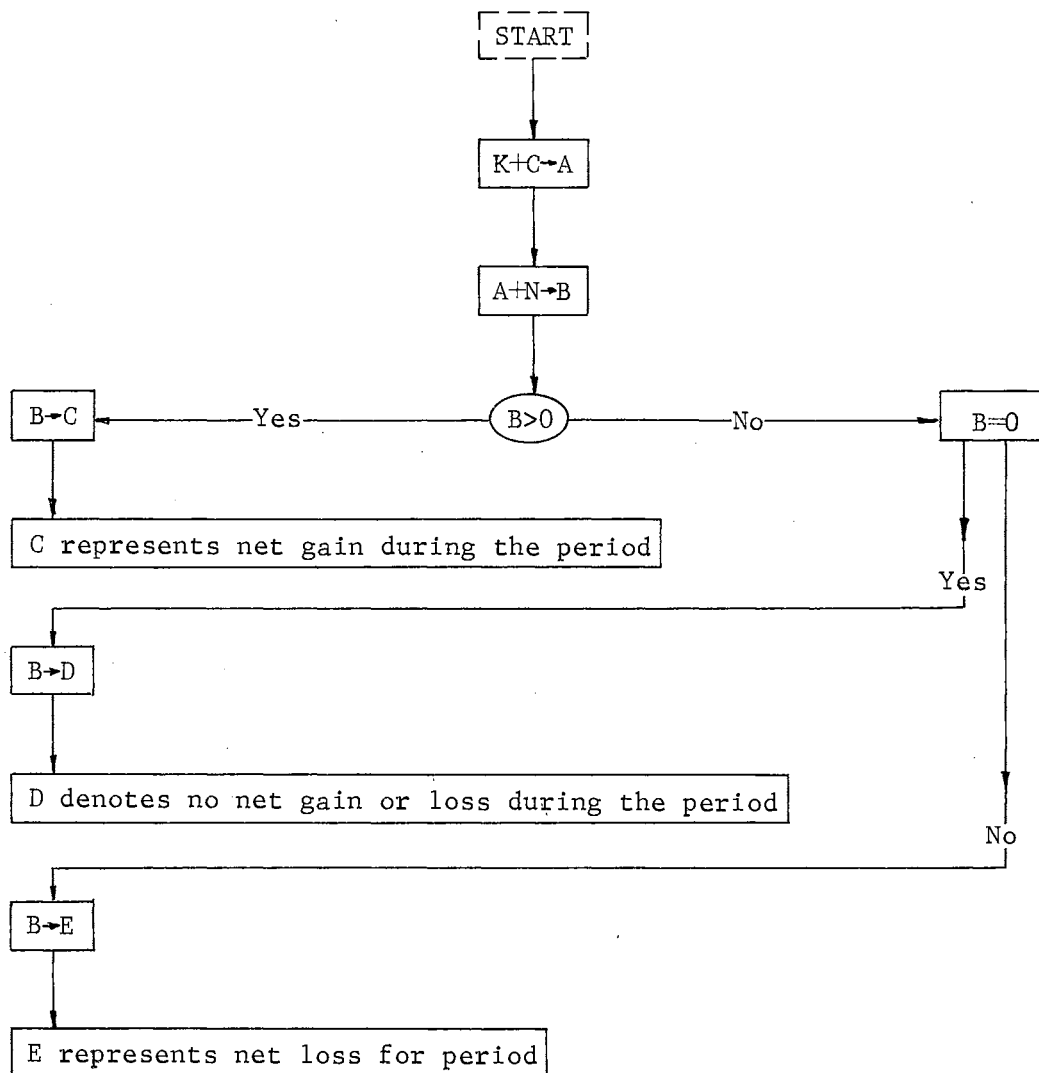
A=long-term debt balance at the beginning of the period (see basic assumptions).

APPROPRIATE INDEX

$V = \frac{\text{first year--end}}{\text{opening of business}}$

FIGURE IV

CONDENSED INCOME STATEMENT



CODE OF ACCOUNTS

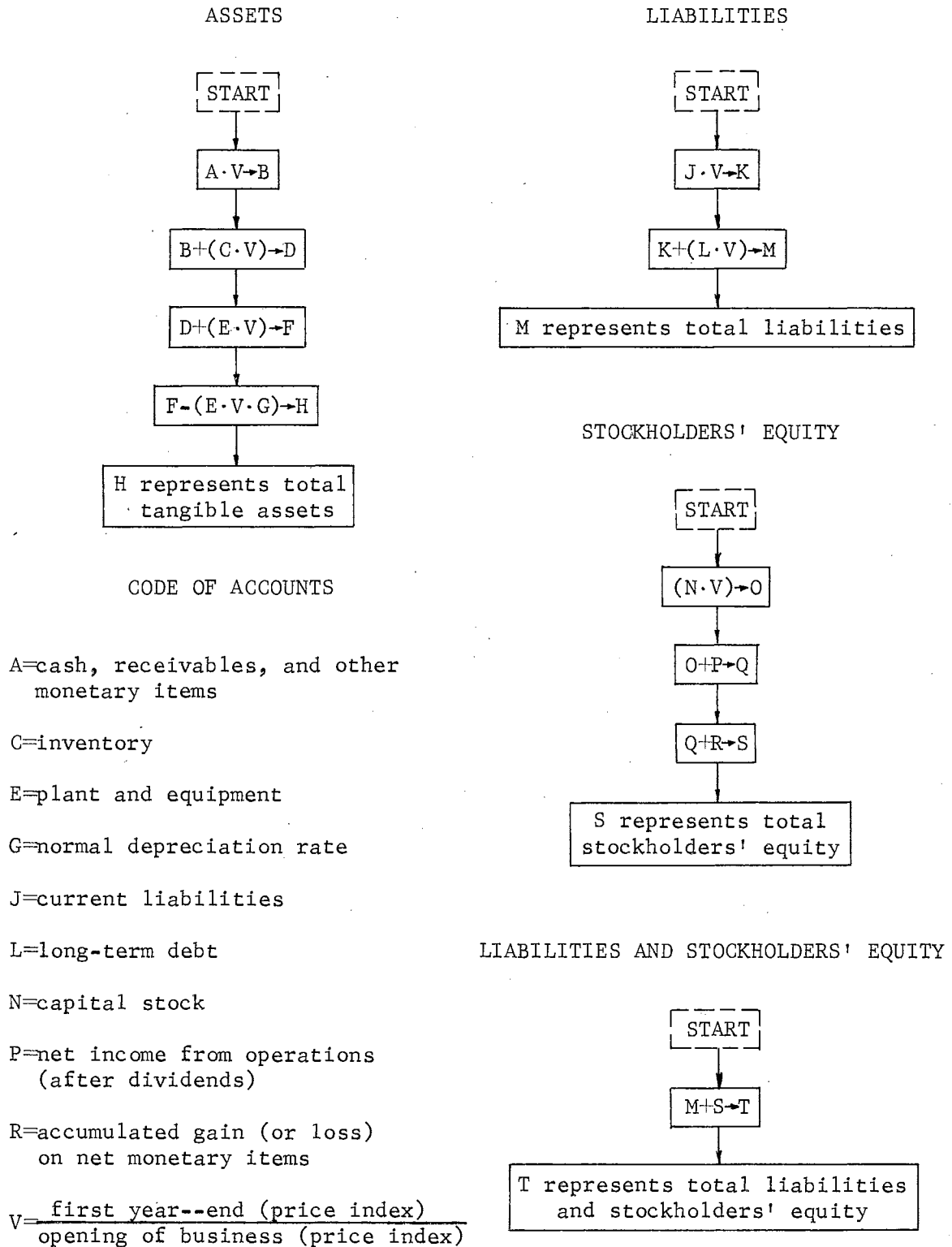
K =gain or loss in purchasing power from holding monetary assets
(see Figure II).

C =gain or loss on long-term liabilities (see Figure III).

N =profit or loss from operations (see Figure I).

FIGURE V

THE BALANCE SHEET



Assuming that Table I fairly depicts the changes in purchasing power of the dollar over time, it is clear that an assumption of a stable monetary unit is not in accord with observable reality. As was stressed earlier, this assumption of a stable dollar results in the addition and subtraction of accounts without the benefit of a common denominator. The accountant's income figure will be a dollar amount, but the command over economic goods of that dollar amount will not be expressed.

The function of the adjustment process is to restate monetary accounts in dollars with identical amounts of purchasing power. Real economic income will be more closely approximated if the adjustment process is employed than if a stable measuring unit is assumed.

Real economic income, as defined here, is quite vague and is essentially non-operational. For example, how are increases in value to be measured? It would seem that the answer to this question is inextricably combined with the concept of capital maintenance embraced. That is, whose purchasing power is relevant? Assume for the moment that only one income statement is prepared for a particular firm, that being at the dissolution of the business. All assets, other than cash, have been disposed of and all claims against the firm settled. At this point the firm's cash balance is \$1,017. The firm began operations one year ago with a net investment of \$900. During the year there have been no distributions of assets. Year 1 is selected as the base period. The price index that the owner's feel is most compatible with their concept of capital maintenance has values as follows:

Year	Price Index	Purchasing Power
0	94	1.06
1	100	1.00

Adjusted Investment	Economic Income	Accounting Income
1.06	1,017	1,017
x 900	- 954	- 900
<u>\$954.</u>	<u>\$63.</u>	<u>\$117.</u>

Under the heading of Adjusted Investment, original investment is multiplied by the purchasing power figure (determined in the manner described in Chapter I) of 1.06 so that invested dollars and current dollars are homogeneous units of measurement. The result of this operation is a restatement of original investment in the amount of \$54, that is, original investment is now considered to be \$954. The liquidation proceeds need no adjustment since they are expressed in dollars of the base period automatically. Economic income will be found by subtracting from the liquidation proceeds the original investment in terms of dollars of equal purchasing power (as measured by the price index used). Thus, the firm's real economic income was \$63. Accounting assumes a stable unit of measurement so accounting income is liquidation proceeds minus original investment in unadjusted dollars (\$900). Accounting income would be reported at \$117.

In the particular example presented above the accountant's assumption of a stable monetary unit was the only factor that caused a discrepancy between accounting income and real economic income. This would be true in all instances if accountants were not called upon to render financial statements during the period between the founding of a firm and its dissolution. The fact is, however, that these interim statements are needed and the accountant is called upon to produce them. Due to the artificial length of an accounting period, and the related temporal process of recognizing gains, it is not possible to simply express the accountant's conventional income statement in terms of adjusted dollars

and thereby arrive at a figure that may accurately be referred to as real economic income. The temporal difference in the recognition of gains in accounting and economics is illustrated below.

In economics value is considered to be added to a good as it passes through the various stages of the manufacturing process, but the traditional accounting statement adds only the costs incurred in the manufacturing process to the item in computing value. When the item is sold the accountant records the profit as though it were completely a product of the accounting period in which the item passes hands. That is, accountants recognize profit when it is realized.¹⁶ The accountant justifies his attachment to the realization concept somewhat as follows:

This difference between accounting and economics is explained by the importance of the criterion of objectivity in accounting. There is no objective way of measuring how much profit is created during the manufacturing process. The outcome of the whole process is known with reasonable certainty only when the buyer and seller have agreed on a price and the goods have been delivered.¹⁷

For purposes of external reporting the accountant's quest for objectivity is easily understandable and just. However, attention in this paper centers not on external reporting, but on managerial decision-making. In the process of managerial decision-making unrealized income may be quite significant as the following hypothetical situation illustrates.

Suppose that on January 1 a business man invests \$30,000 in 1,000 shares of General Motors stock at 30. The price of the stock rises during the year, and on December 31 the business man sells it at 60, duly realizing a profit of \$30,000. He then reinvests the entire proceeds of \$60,000 in 1,000 shares of International Harvester stock at 60. Accountants who audit the business man's books

¹⁶Robert N. Anthony, Management Accounting (Homewood, 1964), p. 71.

¹⁷Ibid.

as of December 31 will certify that the business man has an asset of \$60,000 represented by 1,000 shares of International Harvester stock and that he has earned \$30,000 during the year. But suppose that on January 1 another business man had invested \$30,000 in 1,000 shares of International Harvester stock at 30. The price of this stock rises during the year and on December 31 is selling at 60 as mentioned above. The second business man elects not to sell it, however. Accountants who audit his books as of December 31 will certify that he has an asset of only \$30,000 represented by 1,000 shares of International Harvester stock and that he has earned nothing whatever during the year. Yet it is obvious that both business men started with \$30,000 in cash and that on December 31 both had 1,000 shares of International Harvester stock. A decline in the price of International Harvester which would wipe out the unrealized profit of the second business man would also wipe out the realized profit of the first business man. In fact, there is no difference whatever between them. Yet accountants insist that the realized profit is a profit and that the unrealized profit is not a profit.¹⁸

Clearly, the unrealized income of the second businessman in McNeal's illustration would provide a superior base for decision making purposes than would the accounting income. Likewise, financial statements expressed in homogeneous units of measurement will also prove quite beneficial for managerial purposes.

¹⁸Kenneth McNeal, "Whats Wrong With Accounting?" The Nation, CIL (October 7, 1939), p. 372.

CHAPTER IV

MANAGEMENT'S EFFECTIVE DECISION MAKING ABILITY

Management will increase the efficiency of the firm if it makes a decision in favor of any alternative whose value exceeds its costs, when both value and cost are measured forward from the moment the decision is effective. Concern here is centered on the alternative of adjusting conventional accounting data to reflect the effects of price level changes because therein lies the utility of the information for purposes of decision making. Some of the uses and limitations of the adjusted data from which the firm might obtain a considerable degree of value are explored in this chapter. The reader should note that the topics discussed are intended to be suggestive rather than exhaustive.

A pioneer work in the field of adjusted financial data is that of Henry Whitcomb Sweeney.¹ His work, entitled Stabilized Accounting, was published in 1936. Dr. Sweeney was well aware of the distortions that resulted from what he termed "ordinary accounting" and attempted to impress upon the business community the importance of adjusted data for decision making purposes.

In the twenty-nine years since Sweeney's work appeared, one would think that the thoughtful businessman would have given considerable attention to the price level problem. Such is not the case. To a large

¹Henry W. Sweeney, Stabilized Accounting (New York, 1936).

extent management has retained its apathy toward the many problems created by price level changes. The following argument was advanced by Dr. Sweeney in his attempt to awaken the business community to the problem it unconsciously faced.

Now, the success of the whole system of business depends upon the truthfulness of reports. The truthfulness of reports depends mainly upon the truthfulness of accounting. The truthfulness of accounting depends largely upon the truthfulness of the dollar--and the dollar is a liar! For it says one thing and means another.

The result is that, in greater or less degree, ordinary accounting figures give bad advice. They say to expand or contract, buy or sell, hire or fire when sometimes the opposite should be done, and when usually the extent of such action should be modified or enhanced. They say depreciation and costs are such and such when they are more or less, often decidedly more or less. They frequently say that income taxes should be paid when real income indicates they should not be, and vice versa. They frequently say that dividends should be paid, when they should not be, and vice versa. Consequently, business uses a guide that is certainly not wholly reliable when it uses accounting.²

In the pages that follow a number of areas where adjusted data are believed to be superior to conventional data will be examined. The areas to be examined are: (1) price policies, (2) dividend policies, (3) collective bargaining, (4) evaluation of capital expenditures, (5) analysis of sales growth, and (6) appraisal of managers and operating units. One should, however, note that it would not be a sound managerial practice to base decisions on inferences drawn solely from adjusted data because they too have serious limitations on their usefulness. An examination of the following areas will reveal that the relationship between the conventional data and the adjusted data is that of a complementary nature, rather than one of competition. By using the two types of data in complementary roles the weaknesses of each may be offset.

²Ibid., pp. xi and xii.

Price Policies

Accounting costs do not directly determine price. Rather, forces of supply and demand determine the price at which all economic goods will sell. Costs incurred in producing economic goods, as measured by the accountant, influence the price at which the goods will sell only by affecting the quantity of goods that will be produced in the future.

It is not the customary practice of the businessman to deliver his goods at the market place and stand back to let the forces of supply and demand determine the price for which his goods will sell. Rather, the conventional practice is for the businessman to administer a price that is an estimate of the price that the goods would command in the long run if the price were to be determined by supply and demand alone.

The method used by management to estimate this price may be any of a large number. One such method is to add to the cost of producing the item a fixed percentage of cost and the resulting figure constitutes management's administered price. While a large number of decisions will influence the cost that is determined, for the purposes of this paper these decisions must go unexplored. The obvious truth here is that if management is to set prices on the basis of accounting cost, this cost should be arrived at by the use of adjusted dollars figures. Prices that are based on costs that were not adjusted will generally be lower and the resulting price will not be adequate to maintain the real investment in the long run.

There are occasions when prices have to be lower than the full economic costs of the goods or services sold, but certainly prices should not be set below real costs without full knowledge of the fact. Even if current costs or costs in current dollars are not used for accounting purposes or for financial reporting, they are

needed for pricing purposes.³

Dividend Policies

The development of a sound dividend policy is a complex matter and should be arrived at only after careful consideration. Certainly the income of a firm for an accounting period is not the only factor that influences dividend policy whether that income is accounting income or an income figure derived from an income statement where all accounts were expressed in dollars of the same size. However, attention will be centered here on the role of accounting data adjusted for price level changes in the formation of a dividend policy.

There are legal statutes that prohibit management from paying cash dividends that would impair the stated capital of the firm. The stated purpose of the statutes is to protect creditors and stockholders. However, these restrictions are stated in terms of nominal rather than real dollars. Seemingly, the law does not recognize that real capital may be distributed by cash dividends while nominal capital is kept intact. Cash dividends that reduce real capital may mislead stockholders and the public by paying out the stockholder's original investment under the guise of earnings. The danger to creditors is obvious.

Statutory restrictions are frequently not the only external limitation on management's ability to pay cash dividends. Restrictions imposed by debt contracts and the corporate charter are ever present, but generally none of these restrictions are as severe as those imposed by

³ Ralph C. Jones, Effects of Price Level Changes on Business Income, Capital, and Taxes (American Accounting Association, 1956), p. 139.

sound financial management.⁴

A minimum requirement of sound financial management is that real capital be maintained.

Management, whose intention is to maintain real capital, needs information on real earnings or it may inadvertently pay dividends in excess of economic earnings. The pay-out percentage of monetary earnings may be lowered during inflationary periods, due to management's awareness of need for additional working capital and because of the higher replacement costs of inventories and fixed assets. But unless management is furnished supplemental information on real earnings, it can only crudely estimate the effects of inflation on the real capital position of the organization.⁵

The complexity of the relationship between real earnings, book earnings, and the rate of price level change indicates that management would be unable accurately to determine the amount of accounting income that might be distributed without exceeding real earnings. The following hypothetical example is illustrative of the complexity of the relationships.

The schematic model presented in connection with this example is not intended to depict an actual occurrence. Rather, this model demonstrates the effect of price level movements on the percentage of accounting income that might be distributed without exceeding real earnings. The following assumptions have been made to simplify the construction and the subsequent computations from the basic model.

1) The discrepancy between accounting income and real income is not influenced by any factor other than price level changes.

2) A linear relationship is present between changes in accounting

⁴Earnest W. Walker and William H. Baughn, Financial Planning and Policy (New York, 1961), p. 232.

⁵H. M. Steele, "Managerial Uses and Limitations of Uniform Dollar Accounting," Accounting Review, XXXIV (April, 1959), p. 249.

income and changes in the relevant price level.

FIGURE VI
A PERCENTAGE PAYOUT CHART

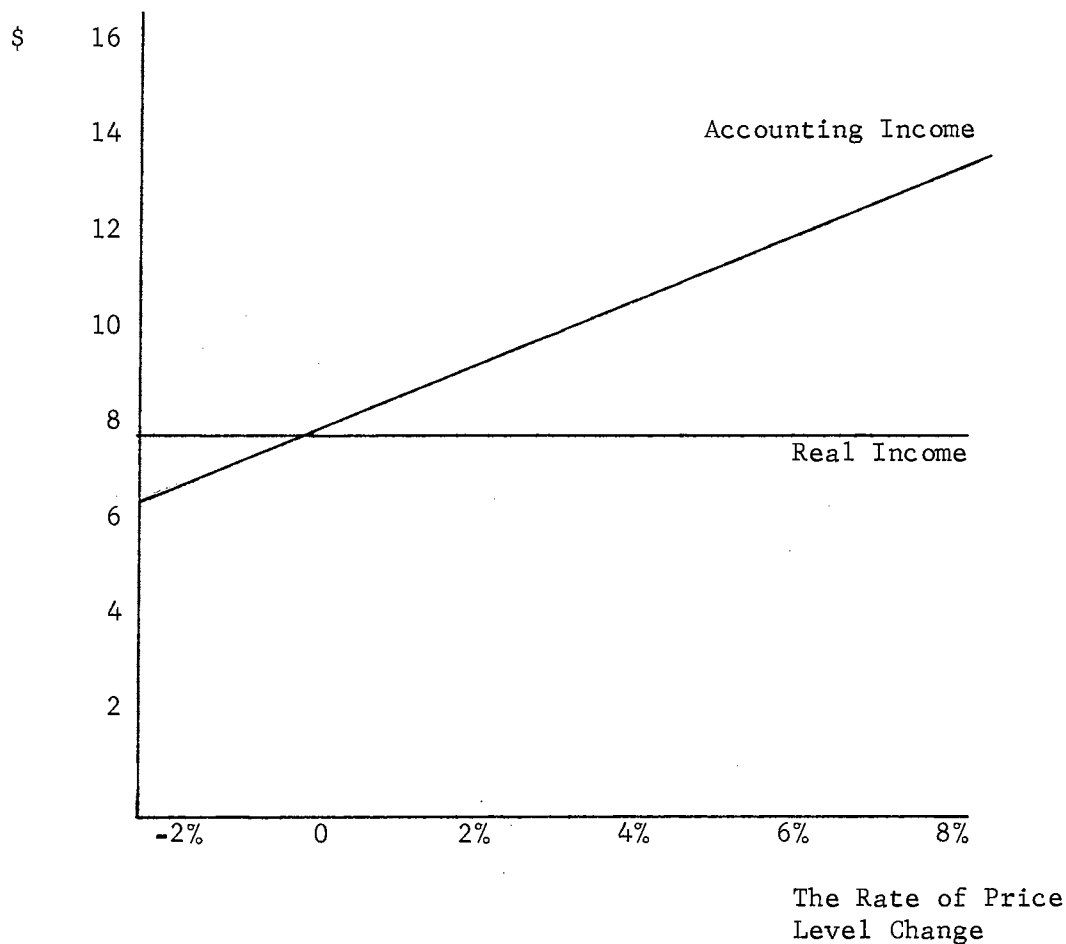


TABLE III
A PERCENTAGE PAYOUT TABLE

Annual Rate of Price Level Change	-2%	0%	2%	4%	6%	8%
Percentage of Accounting Income That Would Have to be Distributed to Pay Out All Real Income	114%	100%	89%	80%	67%	61%

If management is to formulate a sound dividend policy, information regarding real income must be available. The literature suggests three significant ways in which adjusted figures may contribute to a sound dividend policy. They are: (1) they can place a ceiling on distributions of income so that dividends will not exceed real earnings,⁶ (2) they can indicate the percentage of accounting income that may be paid out while retaining a designated portion of real income for expansion,⁷ and (3) they can serve as a useful device in explaining dividend policy to stockholders.⁸

Collective Bargaining

There appear to be two limiting circumstances in which accounting data adjusted for price level changes could be useful in wage negotiations. These limitations are that the negotiations be conducted at a level where the participants have sufficient background to understand the adjusted data, and where the income of the firm is a subject of discussion.⁹

It is immediately obvious that understanding must prevail on both sides of the bargaining table if the adjusted data are to constructively influence labor negotiations. However, this constraint is not as limiting as it might first appear. It may safely be assumed in the great

⁶Steele, p. 245.

⁷Ibid.

⁸Joel Dean, "Measurement of Real Economic Earnings of A Machinery Manufacturer," The Accounting Review, XXIX (April, 1954), p. 256.

⁹Steele, p. 246.

majority of cases that management understands the adjusted data or at least has the background to understand the data. Likewise, at levels higher than the locals it would be fallacious to think that union delegates are not sophisticated enough to comprehend the meaning of the adjusted data. It may well be that management reserves a potent tool unnecessarily when it elects not to present the adjusted data at the bargaining table for fear of a misunderstanding by labor.

If the assumptions made in the preceding paragraph are, in fact, true, then the most likely restraint is whether or not the income position of the firm is in question. In those instances where the income position of the firm is a subject of debate the underlying question will be one of the firm's ability to pay, that is, "...its capacity to sustain a particular cost structure...."¹⁰ In instances where accounting records serve as a measure of the firm's ability to pay, disagreement may arise as to whether real income or reported net income is the most relevant in regard to the problem at hand. If the accounting records are being used to determine periodic income then adjusted data would seem to be the more accurate.

It should be noted that arguments based upon the effects of price level changes are not reserved solely for the firm. Management should be aware that rising price levels tend to develop a discrepancy not only between the firm's monetary earnings and real earnings, but also between the employees' monetary earnings and real earnings.

¹⁰Neil W. Chamberlain, Collective Bargaining (New York, 1951), p. 393.

Evaluation of Capital Expenditures

The present value method is believed superior to other available techniques for evaluating capital expenditures. Nevertheless, the technique is not above reproach. In the following analysis it is assumed that the firm's discount rate does not include an allowance for changes in the purchasing power of the dollar.

The present value of a future payment (A) is defined as the amount (P.V.) which, if invested now at a given rate of return (i), would yield the future payment (A) in a given length of time (n). Therefore,

$$P.V. = \frac{A}{(1+i)^n}$$

The rule here is: Neglecting non-monetary considerations, an investment proposal should be accepted if the present value of its earning equals or exceeds the amount of the investment required.¹¹

Now it would seem that changes in the purchasing power of the dollar should be classified as a monetary consideration. If this be true, then should we not modify the above formula when we anticipate changes in the purchasing power of the dollar? A simple example serves to illustrate the point.

Assume the following situation: a bank has an opportunity to lend \$1,000 to a firm for 5 years. The firm will repay the loan in the amount of \$1,400. Assume further that the risk of non-payment is no greater than is ordinarily involved and that the bank considers its money to be worth 6% compounded annually. The traditional formula would yield the following:

¹¹Robert N. Anthony, Management Accounting (Homewood, 1964), p. 615.

$$P.V. = \frac{A}{(1+i)^n}$$

$$P.V. = \frac{1400}{(1.06)^5}$$

$$P.V. = \$1046.08$$

According to Anthony's decision rule the bank should grant the loan.

But should the bank not consider anticipated changes in the purchasing power of the dollar? Assume that the bank's officers anticipate changes in the general price level as follows:

Year	Price Index	Purchasing Power
0	100	100.0
5	105	95.2

Modifying the traditional formula to utilize this information yields the following:

$$P.V. = \frac{A \frac{\text{present price level}}{\text{anticipated price level}}}{(1+i)^n}$$

$$P.V. = \frac{1400 \frac{100}{105}}{(1.06)^5}$$

$$P.V. = \frac{1332.80}{1.3382}$$

$$P.V. = \$995.87$$

Thus, the traditional present value formula suggests that the hypothetical bank should grant the loan, but the modified formula implies otherwise.

The difficulty of implementing the modified present value formula in practice is recognized. Nevertheless, consideration should be given to changes in the dollar's purchasing power between the investment in an asset and the return from it. Thus, the real function of the modified formula is its contribution to clarity in thinking.

Analysis of Sales Growth

Management often analyzes sales figures in an attempt to detect a trend in the firm's sales growth. Assume that accounting records report the following data:

Year	Sales
1950	\$1,000,000.
1955	\$1,500,000.
1960	\$2,225,000.

Management concludes, on the basis of the above information, that sales have increases 50% between 1950 and 1955, and 50% between 1955 and 1960. Is this really the case? If sales increases are to be measured in a dollar amount, the answer must be yes; but, if sales are to be measured in terms of real sales growth, then it is impossible to determine the answer from the information given. Measuring real growth requires information concerning the purchasing power of the dollar at these periods in time. From Table I information concerning the purchasing power of the dollar in the relevant years may be obtained.

Year	Purchasing Power
1950	111.7
1955	98.8
1960	87.6

$$\frac{111.7}{87.6} = 1.27$$

$$\frac{98.8}{87.6} = 1.12$$

$$\frac{87.6}{87.6} = 1.00$$

Expressing sales figures for 1950 and 1955 in 1960 dollars portrays a quite different growth pattern, as illustrated below.

Year	Real Sales
1950	1,000,000. x 1.27 = \$1,270,000.
1955	1,500,000. x 1.12 = \$1,680,000.
1960	2,225,000. x 1.00 = \$2,225,000.

In terms of 1960 dollars, sales increased roughly 32% between the years

of 1950 and 1955 rather than the 50% implied by the unadjusted figures. Likewise, sales in adjusted dollars increased roughly 33% between 1955 and 1960.

The reader should note that other accounts (e.g., expenses) are amenable to a similar adjustment process and analysis.

However, adjusted sales figures do not reflect movements of physical quantities. It may not be validly inferred that the increase in physical volume of deliveries to customers between the years of 1950 and 1955 was 35% instead of what appeared to be 50% on the basis of the unadjusted data.¹²

What happened to actual physical quantities would depend upon the trend of the sales prices of the products of the concern. These prices might have been rising faster or slower than the general trend or even declining. Only if the prices charged by the company followed the general price level would this function be performed by sales figures adjusted with the use of a general price index.¹³

Appraisal of Managers and Operating Units

With the tremendous movements toward decentralization in recent years, management faces the problems of evaluating the performance of semi-autonomous operating units and the men who manage them. Regarding the evaluation of operating units, the term decentralization is used in its broadest sense and refers to decentralization of decision making, geographical decentralization, and functional decentralization. In the evaluation of men the term decentralization may be limited to the decen-

¹²Perry Mason, Price-Level Changes and Financial Statements (American Accounting Association, 1956), p. 13.

¹³Ibid.

tralization of decision making.

If management is to fairly evaluate the success of these decentralized entities in achieving the firm's objectives, it should utilize accounting data adjusted for price level changes. Costs, revenues, and investments for all decentralized units must be expressed in terms of dollars of the same size.

Management should not, however, disregard the conventional accounting statements because the adjusted statements also have serious limitations. Rather, management should utilize the adjusted statement in a supplementary role.

Accounting data adjusted for price level changes may not reflect certain aspects of managerial success or failure. The application of price indices to historical costs will indicate the economies secured in construction costs and favorable purchases, but will not indicate managerial wisdom, courage, or good fortune in acquisition during periods in which the price level was low.¹⁴ This limitation of the usefulness of the adjusted data restricts the effective value of the data in the appraisal of managers and operating units.

Whether this limitation is of any import in a particular instance would seem to hinge on the controllability of the timing of the acquisition. That is to say, if it may be ascertained that either management had no reasonable alternative other than to acquire the asset at the existing price level or that the timing of the acquisition was a result of good fortune rather than prudent managerial planning, then the above

¹⁴Edward B. Wilcox and Howard C. Greer, "The Case Against Price-Level Adjustments in Income Determination," Journal of Accountancy, LXXXX (December, 1950), p. 496.

limitation of the adjusted data is of no particular significance.

Controllability is an elusive word. As it is used here it refers to the discretion of a particular manager or operating unit over either the acquisition of a given asset. Certainly controllability must be in reference to a particular manager or operating unit; all acquisitions are controllable by someone.

It should be noted that when accounting data is adjusted for price level changes it will continue to indicate the diseconomies of a high construction cost, but will not indicate the diseconomies of acquiring an asset when the dollar's purchasing power is unusually low. That is, the adjusted data will not conceal the fact that management has acquired an asset at too high a price, but will conceal the fact that management has acquired an asset at a point in time when the dollar commanded relatively few goods or services.

CHAPTER V

SUMMARY AND CONCLUSIONS

There is a tendency for the dollar's purchasing power to vary over time. These changes in purchasing power, combined with the accountant's assumption of a stable unit of measurement, result in financial statements that are not optimal for purposes of managerial use in the decision making process.

Methods of adjusting conventional financial statements for these changes in the value of the dollar at different points of time have been developed. The method of adjustment employs a price index number which reflects the changes in the dollar's purchasing power as related to a particular type or group of economic goods. The result is a financial statement where all dollar figures are, in fact, homogeneous units. The adjusted statement, like the conventional statement is not optimal. However, the adjusted statement appears to have considerable value in the internal decision making process. This value should, of course, be greater than or equal to the cost of adjusting the conventional statements.

The index number employed in the adjustment process should be compatible with the concept of capital maintenance deemed most relevant to the particular firm whose financial statements are being adjusted. This is definitely a decision that should be made only by top management after careful consideration. At present, there is no readily available

price index which is compatible in concept with the capital maintenance concept which has as an objective the maintenance of the firm's ability to reinvest in investment goods in general.

Management will find the adjusted data beneficial when making many business decisions. Those areas where adjusted data are thought to be of particular value are: (1) price policies, (2) dividend policies, (3) collective bargaining, (4) evaluation of capital expenditures, (5) analysis of sales growth, and (6) appraisal of managers and operating units.

Just as the conventional accounting statements have serious limitations, so do the adjusted statements. Management should not replace the conventional statements with those adjusted for changes in dollar's purchasing power, but should employ both types of statements in a mutually supporting manner.

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