Accounting in an Inflationary Environment

Robert W. Scapens

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STUDIES IN FINANCE AND ACCOUNTING

General Editors: M. J. Barron and D. W. Pearce

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In memory of Maud E. Scapens

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General Editors' Preface

The last few years have been very exciting for research in finance and accounting. An enormous amount has happened, and in many cases traditional thinking and traditional solutions have been completely overthrown. At the same time it is quite clear that research into the theory and, perhaps even more important, into British empirical evidence will continue to accumulate rapidly. While this is fine for the researcher in his detailed specialist world, it is not so good for the student who wants to acquire a relatively straightforward but up-to-date overview of the subject.

The 'Macmillan Studies in Finance and Accounting' set out to provide short, reasonably critical surveys of the developments within the various specialist areas of business finance and accounting. The emphasis in each study is upon recent work, but each topic will generally be placed in a historical context so that the reader may see the logical development of thought through time. Selected bibliographies are provided to guide readers to more extensive works. Each study aims at a brief treatment of the salient problems in order to avoid clouding the issues in too much detailed argument.

Unfortunately it is inevitable that in a few areas the level of mathematics will be rather near the limit for some students. This is because the rigorous methods of statistics, econometrics and mathematical economics have made a considerable contribution to the research achievements in the subject. Thus, although all the authors in the series have tried hard to make their presentation as lucid as possible, there is a point beyond which mathematical arguments cannot be explained non-mathematically except at a superficial level. Nevertheless intuition can go a long way and many students, even with very little mathematical background, have found that the intrinsic

fascination of the subject more than compensates for occasional difficulty.

M. J. Barron
D. W. Pearce

Preface

The 1970s have brought rapid change to the accountancy profession in the United Kingdom and other countries. Many exposure drafts and statements of standard accounting practice have been published. The subject which has probably given rise to most discussion is the treatment of inflation. This decade may witness the end of the system of historic-cost accounting as the primary means of reporting financial information. The high rates of inflation in many Western countries in recent years have led to a serious reappraisal of the usefulness of historic-cost data. In general, this reappraisal has led to the conclusion that historic-cost accounting has serious shortcomings, particularly in a period of inflation.

The initial attempts to resolve these shortcomings involved the use of purchasing-power adjustments to remove the effects of inflation from historic-cost measurements. However, this approach was severely criticised by many accountants, businessmen and others. In consequence a more fundamental approach was sought. At the time of writing it is expected that historic-cost accounting will be replaced in the near future by a method of current-cost accounting.

The Accounting Standards Committee's *Exposure Draft No. 18* has been published, but the controversy has not ceased. The draft sets out the proposed standard for the application of the method of current-cost accounting advocated by the Sandilands Committee. Several aspects of *Exposure Draft No. 18* have attracted criticism and a number of prominent accountants and businessmen are pressing for additional time to prepare for the implementation of current-cost accounting. None the less it appears likely that current-cost accounting will soon replace historic-cost accounting in the United Kingdom.

The objective of this book is to explain the developments which

have taken place in recent years in the field of accounting in an inflationary environment. The system of current-cost accounting is discussed and, in addition, the prior developments (such as price-level accounting) are examined. In this way it is hoped that the present position will be put into perspective. The implications for financial and management accounting are considered.

It will be assumed that the reader has a basic knowledge of financial and management accounting, but an understanding of particular accounting procedures is not essential. This book is not a detailed manual of current-cost accounting. The principles and concepts of methods of accounting in an inflationary environment (including current-cost accounting) are discussed and illustrated by simple examples. The book is intended to explain the conceptual nature of recent developments in this area to both students and practitioners of accounting.

In conclusion I would like to express my thanks to Mr Roy Cromer and his Word Processing Department at the Ohio State University for the preparation of the typed draft and to Miss Debbie Jameson for her painstaking work in typing my revisions. My thanks are also due to my wife, Maureen, for her encouragement and her help with the arduous task of checking my manuscript.

Manchester University Robert W. Scapens
January 1977

CHAPTER 1

Introduction

Inflation has assumed great political significance during the last decade. It is regarded by most people as being associated with undesirable effects and it has implications for all persons and institutions who conduct their economic activities by means of monetary units. The accounting professions in the United Kingdom and in a number of other countries have given detailed consideration to the accounting implications of inflation. Furthermore, in 1974 the U.K. government set up the Inflation Accounting Committee, with Francis Sandilands as chairman, to consider whether – and if so how – company accounts should allow for changes (including relative changes) in costs and prices. In the United States the Financial Accounting Standards Board has undertaken a similar enquiry. However, inflation is not a new phenomenon; it has been experienced by most countries at some stage in their history. Unfortunately the nature of inflation is frequently misunderstood.

What is Inflation?

Dictionary definitions have generally referred to inflation as an exceptional or inordinate rise in prices. This use of the term appears to embrace all price rises which are regarded as excessive (irrespective of origin) and it seems to represent the popular understanding of inflation. However, in economics there is no generally agreed definition of the term; nor is there a generally accepted body of theory on the subject. Definitions such as – a rise in the general price level, a fall in the value of money, and a rise in the money value of the national income greater than the rise in its real value – are all frequently used to describe inflation. Such definitions have one characteristic in common: they all involve a change in the relationship

between money and goods in general within the economy. For present purposes such changes will be referred to as movements in the general level of prices. These should be distinguished from changes in the prices of individual goods and services which arise from their particular market conditions.

The general level of prices is determined by macroeconomic factors within the economy. The prices of individual goods and services, which will be referred to as 'specific' prices, are influenced by both the general level of prices and the particular market conditions for the goods or service. Market conditions determine the price relationships between individual goods and services. For instance, the price of coal may rise more than the general level of prices because the demand for coal is increasing as a result of substantial increases in the price of oil. In summary, it may be said that the specific price of a commodity (e.g. coal) may change as a result of movements in the general level of prices and shifts in the relative price of that commodity *vis-à-vis* the prices of other goods and services. Only the change in the general level of prices should be considered inflation. Relative price changes may occur, and accordingly change specific prices, even if the general price level is stable.

The term 'inflation accounting', which has become popular recently, appears to imply an examination of the accounting implications of general price-level changes. However, to undertake such a study without due regard to the effects of relative price changes would be of limited value. In this book the implications of both general and specific price changes are considered. It should be remembered that the implications of specific price changes will still be important in a period of little or zero inflation. Furthermore, the distinction between general and specific price changes should be kept in mind throughout the following chapters.

Measurement of Inflation

The change in the price of a single commodity over a period of time is capable of direct observation and measurement, provided no change occurs in the nature of that commodity. For example, the price of the output of a silver mine producing silver of a single quality can be directly compared over time. However, if a change occurs in the quality of silver produced during a period, the prices of the output at the beginning and end of that period cannot be directly

compared, as they do not represent prices of a homogeneous commodity. In such cases an adjustment should be made to one of those prices to reflect the change in quality of the output. A similar situation arises when advances in technology change the characteristics of the product of a manufacturing process.

When analysing the price changes of a large number of items it is impracticable to consider each individually, and, therefore, similar items are generally analysed as a group. These groups may comprise a very small number of almost identical products, for example electric typewriters, or they may be framed in much wider terms, for example office machinery, or even capital goods as a whole. To evaluate changes in the general price level a group which includes all the goods and services produced in the economy should be used. The use of such a large group obviously involves some special problems.

One method of measuring the price changes in a group of items would be to take a *weighted* average of their separate percentage price changes from some base year (the average method). The weights used would be chosen to represent the relative importance of the individual items within the group. An alternative would be to use the value of a particular 'parcel' of those items at two dates, and to compute the percentage change in the value of that parcel (the aggregate method). The amount of each item in the parcel should reflect the relative weight attached to it. By relating the price movements ascertained by one of these two methods to some base year, a series of index numbers can be constructed.

A major problem in the construction of index numbers is the choice of weights. Where the items are few and their relationship stable over time, the problem is easily solved. For example, to calculate an index of the prices of metals forming an alloy, in which the mix of metals does not alter, an obvious choice of weights would be the amount of each metal required for one mix. However, if technology changes and alters the mix of metals, there will be a number of possibilities available for use as weights. One could use the mix at the base date, at the present date, or at any other date. The use of the mix at the present date is favoured by many compilers of index numbers, as it relates the index to the current conditions. However, that method involves frequent reconstructions of the series as the weights change.

Such problems are extremely important in the calculation of a

general price-level index, because of the large number of different items comprised within the index and also because prices frequently vary with locality. To overcome the practical problems of data collection, statistical sampling techniques are employed. However, only an index which comprises all goods and services within the economy can legitimately be called a general price-level index and a measure of inflation. Nevertheless, other index numbers are published and are popularly believed to measure inflation. Three categories of index numbers are mentioned below:

(i) *National-income deflators* – these are usually obtained by revaluing successive years' national outputs at the prices of some base year and comparing this base-year price revaluation with the valuation at current prices. Since they apply to the total output of the economy, such index numbers provide a measure of inflation as defined above. No such index is readily available for the United Kingdom; but in the United States and some other countries G.N.P. implicit price deflators are published.

(ii) *Consumer-price indices* – these may be obtained by either the average or the aggregate method and are designed to measure the change in the price of a parcel of goods purchased by a representative consumer. In the United Kingdom the parcel of goods is designed to approximate the *average* weekly expenditure of an *average* family. It gives an indication of the extent to which price changes affect the *average* consumer. Such an index is generally considered to measure inflation in the United Kingdom. However, many items of expenditure are not incurred by the *average* consumer and accordingly are omitted from the index.

(iii) *Wholesale-price indices* – these measure changes in all wholesale prices; but to the extent that they do not measure the prices of all goods and services, they represent an imperfect measure of inflation.

It may be concluded that the measurement of inflation is not an easy task and certain of the measures popularly used to measure inflation are at best only approximations.

Effect of Price Changes on Financial Accounting

Accounting practice has evolved to meet the needs of business communities for information about their economic activities. The approach was pragmatic – practical methods were devised to meet

particular needs as they arose. There was no development of a unified theory relating accounting objectives and actual measurement techniques. In constructing accounting theory, contemporary accountants have attempted to infer the assumptions which underlie traditional practices. One such assumption is the stability of the monetary unit. This is obviously an unrealistic assumption in present circumstances; but the important question to be considered is whether it is a critical assumption in relation to the particular problems under review.

Traditional accounting measures financial position and profit in terms of the historical costs of the resources owned and used by the business. These historical costs may not reflect the value to the business of the resources used in production; the difference may be particularly great at times of rapid inflation. This can be illustrated by means of a simple example. A sole trader, Mr *X*, commenced business with £1000 cash on 1 January 19*X*4, at which date the general price index stood at 100. He immediately bought goods with the whole amount. These goods were retained until 31 December 19*X*4, at which date they were sold for £1500 in cash; no other expenses were incurred and on that date the general price index stood at 120. Had Mr *X* decided to replace the goods immediately by identical goods, they would have cost him £1500.

The profit reported by traditional accounting would be £500 (£1500 − £1000); but is this the most useful way of summarising the transactions? Assume that Mr *X* continues in business and buys identical goods on 1 January 19*X*5. He is no better off in terms of physical quantities, as he can buy only the same amount of the particular goods (for £1500) and he would have no surplus for other purposes. Thus, in this instance, his surplus (profit) could be reported at zero. Alternatively we could consider the general purchasing power available to Mr *X*. The movement of the general price index implies that £1200 at 31 December 19*X*4 is equivalent in terms of general purchasing power to £1000 on 1 January of the same year. Accordingly Mr *X*'s purchasing power has increased as a result of the transaction. In this case the reported profit might be measured as £300 (£1500 − £1200) in terms of 31 December 19*X*4 purchasing power.

The above example illustrates, in a very simple way, three concepts of business profit – the traditional concept of profit and two alternatives which could replace or modify it. Although most writers

on this subject have their particular proposals for the improvement of profit measurement, a split can be detected in the literature between those who propose the use of some general price-level index to modify measurement of historical cost and those who propose to replace historical costs by valuations at specific prices.

Effect of Price Changes on Management Accounting

Recent developments in the field of management accounting have emphasised the importance of opportunity costs. It may be argued that historical costs are of little value in themselves, except in so far as they provide an indication of future costs. Managers make decisions about activities to be undertaken and, accordingly, need information about the financial consequences of available opportunities. The accepted procedure for the evaluation of alternative courses of action is to determine the cash flow arising from each. This will provide a measure of the surplus available to the owners of the business. To evaluate such cash flows an estimate is required of the prices which will prevail at the time when individual inflows and outflows of cash occur.

It is sometimes assumed that it is sufficient to evaluate future cash flows in terms of the prices prevailing at the present time (usually called 'current' prices). However, optimal decisions may not be reached if selection is based on current price estimates of future cash flows. The surplus available to owners will arise from the actual cash flows (i.e. at future prices) and a ranking of alternatives based on such cash flows may differ from the current price-based ranking (except when all relevant prices change in concert, as for instance when relative prices remain unchanged in a period of inflation). Relative price changes may make certain alternatives more desirable than others.

The only completely satisfactory treatment of inflation and relative price changes in this area of management accounting is to evaluate future cash flows in terms of the expected monetary inflows and outflows. If cash flows arise over a period of time they should be discounted to a present value by a discount rate which includes a factor for inflation. In other words, the discounting process should make adjustment for the fact that a cash flow at some future time will possess less purchasing power than a similar amount of cash at the present time.

Plan of the Book

In this book the implications of changing prices will be discussed in the context of two major areas of an accountant's work – the preparation of published financial statements and the presentation of information to management for decision-making purposes. Chapter 2 indicates the historical development of interest in the subject of accounting for changing prices and outlines accountants' reactions to some of the notable inflationary situations of recent history.

The preparation of published financial statements is discussed in Chapters 3 to 6. Chapter 3 examines the theory and Chapter 4 the application of constant purchasing power accounting (also called general price-level accounting), which has been advocated by professional bodies in several countries, including the United Kingdom (in the early 1970s) and the United States. Current-value accounting, including the recommendation of the Inflation Accounting (Sandilands) Committee in the United Kingdom is discussed, in Chapters 5 and 6. In Chapter 7 it is argued that the choice of a method of accounting to be adopted in practice should be determined by the objectives of publishing the financial statements and that insufficient attention has been given to these objectives in recent years.

Chapters 8 and 9 examine the implications of inflation in the field of management accounting. Adjustments for expected price fluctuations in capital-project appraisal are illustrated in Chapter 8. Finally in Chapter 9 there is a discussion of the treatment of expected price movements in short-term planning and the adjustment for price variances in control reports.

CHAPTER 2

Historical Developments

The current concern about the implications of using traditional accounting methods in a period of inflation is not unique. Accountants in many countries have from time to time raised questions such as that asked in the United States by Middleditch in 1918: 'Should accounts reflect the changing value of the dollar?'[1] Such questions have generally coincided with material rates of inflation. However, in recent history periods of relative monetary stability or even deflation have generally followed periods of inflation, and the cyclical pattern has hindered the introduction of revised accounting practices. The movement towards reform during a period of inflation has frequently lost momentum with the return of relative monetary stability.

The more severe periods of inflation have generally been associated with wars. During the period immediately following the First World War there were exceptionally high rates of inflation in Germany and, to a lesser extent, in France. Some interesting proposals were advanced by accountants in those countries during that period.

The German Experience

The fall in the value of the German mark reached very great proportions by the end of 1923. The gold equivalent of 1 paper mark in 1914 would buy 1,000,494,971,000 marks in December 1923. Such variation in the value of the monetary unit gave rise to a number of accounting problems. For instance, a businessman in Germany at that time could not measure growth in his sales volume by comparing the paper value of, say, sales in December 1923 with those in January of that year. Such comparison violates the basic mathematical principle that dissimilar items cannot be compared.

The general reaction of German businessmen to this massive decline in the value of money was to use the current price of replacing resources as a basis for decision-making. This was the accepted method of maintaining the physical capital of the firm. For instance, a commodity which had cost 10 million marks to acquire but would cost 50 million marks to replace at the date of sale would be offered for sale at 50 million marks plus a profit margin. In circumstances where it was difficult to ascertain replacement costs, it was suggested that the businessman should construct an index of prices for the goods normally purchased by his business. If the index had doubled since the date a particular item was purchased, that item should be offered for sale at twice its original cost, plus a profit margin.

Certain German academics suggested that replacement costs or adjustments based on an individual-business price index should be incorporated into financial reporting. Such a proposal may be compared with the simple example used in Chapter 1. It may be recalled that Mr *X* commenced business with £1000 on 1 January 19*X*4, and immediately bought goods with the whole amount. These goods were subsequently sold on 31 December for £1500; no other expenses were incurred. The replacement cost at the date of sale was also £1500. If replacement cost is used for financial reporting the £500 difference between original cost and the replacement cost at the date of sale will not be regarded as a part of the reported profit, which would be calculated by deducting the replacement cost of goods sold from the sale proceeds. In this example there is neither profit nor loss; but if the sale proceeds exceeded £1500 a profit would be recorded; if less, a loss.

Although replacement costs were in common use for the day-to-day running of German businesses during this period of inflation, the annual financial statements were commonly prepared by other methods. The method most often used as a supplement to historical-cost reporting was 'balance-sheet stabilisation in terms of the gold mark'. The supplementary balance-sheet reflected changes in general purchasing power through adjustments similar to those based on a general price-level index. The gold mark was assumed to have constant purchasing power and a change in its paper-mark equivalent assumed to represent a change in the purchasing power of the paper currency. Each entry on the historical-cost balance-sheet was restated in terms of gold marks. For instance, cash was stated in gold marks using the paper-mark equivalent at the balance-sheet date,

whereas fixed assets were restated using the paper-mark equivalent at their acquisition date. The difference between the opening and closing balance-sheets, stated in terms of gold marks (assuming appropriate adjustments for new capital and distributions), measured the profit for the period.

One reason for the widespread use of this method of balance-sheet stabilisation was its simplicity. The necessary adjustments were analogous to the adjustments used in accounting for foreign-exchange transactions. A further reason was the legal requirement that all German businesses were to prepare an annual balance-sheet expressed in terms of the paper currency. Such a balance-sheet could not easily be prepared from an accounting system based on replacement costs, or which included integrated adjustments for movements in an individual-business price index. An additional factor favouring stabilisation in terms of gold marks was the failure of the taxation authorities to recognise (for the major part of the period of inflation) the fall in the value of money. This meant that accounts based on historical-cost conventions were required for the assessment of taxation. Accordingly, the stabilised balance-sheets were reported as supplements to the traditional historical-cost financial statements.

With the introduction of the Rentenmark, towards the end of 1923, and the restoration of the gold mark early in 1924, the German economy eventually returned to a more stable monetary unit. This was accompanied by a return to the strict adherence to historical cost as the basis of accounting and an abandonment of practices adopted in the period of inflation.

Reactions in France

The post-1919 inflation in France was far less dramatic than the German experience, but nevertheless provided the necessary stimulus for a number of French accountants to consider the difficulties created by an unstable monetary unit. During the period 1919–27 prices in France approximately doubled, although not all prices responded in a similar manner.

In France, as in Germany, the method adopted for financial reporting was the simplest of all the proposals. It was the equivalent in francs to the gold-mark stabilisation used in Germany. The bookkeeping records were maintained in terms of the paper currency and

the resulting balances were corrected to give a balance-sheet in terms of gold francs. The pre-1914 franc was referred to as the gold franc, as prior to that date the currency was linked to the gold standard. Accordingly entries on the gold-franc balance-sheet were expressed in terms of 1914 purchasing power.

This reaction of professional accountants in France (i.e. the choice of the simplest method for financial reporting) provides a close parallel between France and Germany. Another reaction, similar in the two countries, was the use of replacement costs in setting prices. It may be concluded that the reactions to inflation were similar in Germany and France. However, it is possible that the German experience, which occurred earlier, moulded attitudes in France.

The United States and the United Kingdom

Although the United States and the United Kingdom did not experience inflation in the 1920s on the scale of Germany, or even France, the memory of the increases in the general level of prices during the war years stimulated some British and American accountants to consider the implications of monetary instability. However, attention in the United Kingdom was restricted to the implications for taxation policy and depreciation provision. The effects of inflation on tax payments was particularly important in the United Kingdom because of the dual rates of tax in operation at that time: namely, 25 per cent of profits up to the pre-war standard and 85 per cent of profits above that standard.

In the United States Middleditch was encouraged to ask his question – 'Should accounts reflect the changing value of the dollar?' – by the instability of the dollar in the period 1897–1917. He thought it unreasonable to combine dollars of different dates, and proposed adjusting all year-end balances to reflect some stable measurement unit. For instance, if a fixed asset was purchased some time ago (at a date when the value of the dollar was twice its current value), the historical cost would be restated in terms of the current value of the dollar (i.e. the original cost multiplied by the factor 2). At the time Middleditch was writing economists were developing index numbers capable of approximately measuring changes in the value of money, and he suggested that such index numbers could be used to restate account balances. It may be noted that this adjustment was proposed in 1918 without the benefit of the German and French experiences.

Middleditch concluded his article by asking a question: 'would it not be scientific, sound accounting practice, in those instances in which it makes any essential difference, to make the books of account reflect changes in the value of the monetary unit?'[2] This challenge was not taken up by the American accounting profession at that time; however, the problem of changing prices was given further consideration in the depreciation literature. Paton, who was one of the most eminent accounting theorists in the United States during the first half of the twentieth century, suggested that the problem encompassed much more than the changes in the general price level.

Paton was not convinced that index numbers provided an accurate measure of changes in the value of money, but he nevertheless thought that some adjustment should be made. He suggested writing up fixed assets to their replacement cost and calculating depreciation on the revised value. His main concern was with the well-being of the business as an economic unit. One of his comments in this context has as much relevance today as when it was made, over fifty years ago!

> Accounting systems must become more sensitive and accurate gauges of economic data – and certain long-standing theories and policies of accountants must undergo modifications if the purposes of the various interests in the business enterprise are to be adequately served.[3]

It is interesting to note that at least one accountant, so many years ago, held this view – which is receiving increasing support today. However, the publication of these views by Paton evoked little response from other American accountants, except some objections to the use of replacement costs as a basis for depreciation.

The lack of impact on the U.S. accounting profession in the 1920s may have been due to the failure of the advocates of new methods to present detailed descriptions or numerical examples of their proposals. However, in 1936 Sweeney published a book which demonstrated a method of stabilising either historic costs or replacement costs by adjustments for general price-level movements.[4] In developing his ideas, Sweeney undertook a detailed study of the German inflation-accounting literature. His main proposal was an extension of the gold-mark stabilisation which was extensively used in Germany. However, in place of gold as the basis for stabilisation

Sweeney suggested the purchasing power of money at the end of the reporting period.

By the end of the 1930s most U.S. accountants were aware that monetary instability can affect financial statements. However, there appears to have been a general belief that businessmen and accountants who read balance-sheets and profit and loss statements can interpret the figures reasonably accurately in the light of their knowledge of changes in the value of money. This belief has since been shown to be unfounded as inflation affects accounting reports in an extremely complex way. However, empirical work to dispel this belief was delayed by the onset of the Second World War.

The concern voiced in the United States about the implications of inflation had some influence on accountants in the United Kingdom. The work of Sweeney, for instance, was discussed, and fears were expressed in 1939 about the possible accounting consequences of the inflation expected to result from the financing of a heavy defence programme. However, no action was taken at that time and the official reaction of the professional accounting bodies was delayed until the years following the war.

After the Second World War

The monetary inflation which followed the Second World War was accompanied by a resurgence of interest in inflation accounting. Once again Germany, and to a lesser extent France, experienced periods of rapidly rising prices. The United States and the United Kingdom also had inflation, particularly in the late 1940s and early 1950s. One characteristic of the post-war period, which distinguishes it from earlier periods, was the involvement of professional bodies and, in some instances, governments in the accounting implications of inflation.

In the United States consideration was given to general price-level adjustments. Research was encouraged, and, in some instances, sponsored by professional bodies, mainly by the American Accounting Association (A.A.A.). Although the A.A.A. is not the principal professional body in the United States, its membership includes a large number of the country's prominent professional accountants. In 1951 a committee of the A.A.A. recommended the adoption of general price-level adjustments. The proposals were issued as a temporary measure pending the results of extensive work and

experimentation. The committee agreed that inflation affects various items in the income statement and distorts the profit measure. The use of replacement costs or current values was rejected because it would 'represent a departure from recorded historical cost and thereby destroy to a considerable degree the objectivity of accounting'.[5] Accordingly, general price-level adjustments, which were seen as the alternative, were recommended. However, in 1957 the A.A.A. recognised as important adjustment for changes in the prices of specific assets and advocated the publication of supplementary information indicating the effects of specific price movements on the resources of the business.

While the main interest in the United States immediately after the war was with general price-level adjustments, there was some support within certain professional bodies in the United Kingdom for financial statements which reflected changes in the prices of specific items. In 1952 the Association of Certified and Corporate Accountants published *Accounting for Inflation* and the Institute of Cost and Works Accountants published the *Accountancy of Changing Price Levels*; neither of these books were official expressions of the views of either body, but the reports of research committees. Both books recommended the use of current values (i.e. the prices of specific assets). Furthermore, although the Institute of Chartered Accountants of Scotland did not publish proposals as extensive as those mentioned, it expressed a tolerant attitude towards the use of specific price adjustments. The Institute of Chartered Accountants in England and Wales, however, was less tolerant and rejected any moves away from historical cost.

Legislation in Germany and France

During and after the Second World War, France and Germany experienced rapid inflation of their currencies. As part of the post-war reconstruction of their economies, measures were introduced to permit the revaluation of assets. These measures were regarded as essential to prevent extreme distortions from being carried forward into the post-war era.

The German revaluations took place on 21 June 1948 – the day after the introduction of the Deutsche Mark. All companies were required to prepare a 'Deutsche Mark opening balance-sheet' on that date, in order to provide a base point for future financial statements.

The relevant legislation explicitly stated that assets could not be valued in excess of current replacement cost at the date of the opening balance-sheet, but implicitly condoned the understatement of assets. For tax purposes depreciation in subsequent periods was to be calculated on the revalued amounts. However, the Deutsche Mark opening balance-sheet also formed the basis of assessment for the War Damage Equalisation Levy. Thus it was not in every company's best interest to revalue to the maximum permitted extent.

In France the accounting reaction to the post-war price inflation was a system of uniform revaluations instituted by legislation in 1947. The system was retained, with some modifications, until the introduction of the New Franc in 1958. Fixed assets were revalued using coefficients from an official government publication. The revaluation adjustments were not mandatory, but depreciation on revalued fixed assets was an allowable deduction for tax purposes. The repeal of this system appeared to be associated with the French government's campaign to achieve public confidence in the stability of the new monetary unit. Legislation, which was associated with the monetary instability of the previous years, was repealed.

Recent Developments

Following the post-war legislation, accounting practice in Germany and France returned to the strict adherence to historical cost. In the United Kingdom and the United States the concern expressed in the 1950s did not lead to the revision or abandonment of historical-cost methods of accounting. In the 1960s the American Institute of Certified Public Accountants (A.I.C.P.A.) became involved in the discussions, and its Research Division was given a directive by the Accounting Principles Board 'to set up a research project to study the problem and to prepare a report in which recommendations are made for the disclosure of the effects of price-level changes upon financial statements'.[6] This resulted in the publication in 1963 of *Accounting Research Study No. 6*,[7] which recommended that the effects of changes in the general price level – measured by a general price-level index – should be disclosed as a supplement to the conventional financial statements.

The study was not without its critics. Accountants in the United States, particularly academics, were critical of the proposed supplementary data. Nevertheless, the A.I.C.P.A. was firmly opposed to

adjustments for changes in specific prices (e.g. replacement costs) which were proposed by many of the critics of the study. The A.A.A., however, strengthened its commitment to specific prices with the publication of two statements in 1964. These statements advocated a single integrated set of accounting reports incorporating the current replacement costs of fixed assets and inventories.

The A.I.C.P.A. took no further action until 1969, when the Accounting Principles Board issued its *Statement No. 3*.[8] This statement recommended the presentation of financial information, adjusted for price-level changes, as a supplement to the basic historical-cost financial statements. However, it was stated that the publication of such supplementary information was not essential for the fair presentation of financial position. Accordingly, the statement has had little impact on generally accepted accounting practices in the United States.

Despite the discussions and publications in the United Kingdom during the early 1950s, the traditional methods used in practice were not greatly changed. The lower rates of inflation in the late 1950s and early 1960s made the topic of less immediate concern and it was not until the late 1960s that further action was taken. In 1968 the Research Committee of the Institute of Chartered Accountants in England and Wales sponsored the publication of an inflation-accounting booklet[9] which favoured adjustments for changes in the general price level. Much of the booklet was devoted to the mechanics of the proposed adjustments and little space was given to the reasons for adopting the method. In a subsequent discussion paper,[10] the Accounting Standards Steering Committee (A.S.S.C.) indicated their support for general price-level adjustments, but again without any real expression of their reasons for the preference.

In January 1973 the A.S.S.C. issued *Exposure Draft No. 8* which set out the details of a proposed standard of 'Accounting for changes in the purchasing power of money'.[11] (The A.S.S.C. publishes exposure drafts on various accounting topics to promote discussion prior to issuing statements of standard accounting practice.) The draft outlined a system of adjustments based on a general price index and promoted much discussion of inflation accounting throughout 1973 and the first part of 1974. Certain members of the accounting profession and business community as a whole severely criticised the proposals contained in the draft. The reasons for criticism were many and varied. Amid this discussion and the general interest in inflation

accounting the government announced its intention of forming a committee with wide terms of reference to review the accounting implications of inflation. This committee (the Sandilands Committee) held its first meeting in January 1974, and completed its work in June 1975. Its report was set before Parliament in September 1975.[12]

While the Sandilands Committee was undertaking its work, the A.S.S.C. issued a statement of standard accounting practice which broadly contained the same provisions as the draft.[13] However, in view of the existence of the government committee the A.S.S.C. issued the statement as a 'provisional' standard. This effectively meant that the standard was not binding on practising accountants, but all quoted companies were encouraged to adopt it. In 1975 many companies published the supplementary information recommended by the statement. However, the report of the Sandilands Committee was critical of the method of general price-level accounting contained in the statement and recommended that published financial statements should reflect specific prices of the resources owned and used by the firm. The proposed method of accounting has come to be known as 'current-cost accounting'.

The report of the Sandilands Committee was accepted by the government and, in general terms, received the approval of the accountancy profession in the United Kingdom. The A.S.S.C. (which had been renamed the Accounting Standards Committee) formed a special working party, with Douglas Morpeth as chairman, to plan the implementation of current-cost accounting. On 30 November 1976 the exposure draft of a statement of standard accounting practice on current-cost accounting was published.[14] The debate on the proposals contained therein is continuing, but it appears probable that current-cost accounting will be adopted in the United Kingdom by 1978.

At the time of writing, discussion is also continuing in the United States. The Financial Accounting Standards Board (F.A.S.B.) has issued an exposure draft on general price-level accounting[15] and has indicated its intention to issue a further exposure draft when a review of methods of accounting in terms of the current prices of specific assets has been completed. Further, in 1976 the Securities and Exchange Commission introduced a requirement that replacement-cost data must be included in the annual reports which U.S. corporations register with the Commission.

Thus the debate continues. It may be concluded that there has been a clear shift in emphasis during the 1970s in favour of specific price methods and away from general price-level accounting. However, the two methods are not mutually exclusive. General price-level adjustments can be added to financial statements which reflect specific price changes. In subsequent chapters these methods of accounting will be explained and evaluated.

CHAPTER 3

Constant Purchasing Power Accounting I—Concepts

The Accounting Standards Steering Committee (A.S.S.C.) set out in their provisional *Statement of Standard Accounting Practice No. 7* a method of preparing financial statements which includes adjustments for changes in the value of money. Although the value of money may rise as well as fall, the current conditions of continuing inflation have led to the contents of the statement being referred to as 'inflation accounting'. However, the proposed accounting adjustments are also applicable during a period when the value of money is rising and prices are generally falling. For this reason, the term 'price-level accounting' may more aptly describe the nature of the statement.

As outlined in Chapter 2, similar proposals have been published in the United States by both the Accounting Principles Board (A.P.B.) and the Financial Accounting Standards Board (F.A.S.B.). Exposure drafts on the subject have also been issued in Argentina, Australia, Canada and New Zealand. However, the proposals have not become generally accepted. An exposure draft proposing a method of accounting for specific price changes has been issued in Australia, and in the United States the F.A.S.B. is reviewing alternatives to price-level accounting.

In the United Kingdom the Inflation Accounting (Sandilands) Committee concluded that, while price-level accounting may offer certain short-term advantages, in the long run it does not provide a solution to the problems of financial reporting in a period of inflation. Before reviewing the arguments for and against price-level accounting, its characteristics will be explained and illustrated.

The Need for Price-level Accounting

Accountants prepare profit statements and balance-sheets by aggregating and comparing transactions at various dates. By way of

illustration suppose that a business acquires two items for resale on 1 January 19*X*4 and a further three items on 10 January. The five items are sold on 20 January and the total proceeds used to acquire a further four items on 22 January. These four items are held on 31 January. To determine the outcome of these transactions and the financial position on 31 January a measurement scale is required to assist aggregation of the two purchase transactions and for comparison with the selling transaction. In the absence of such a scale, the accountant's report would be restricted to descriptive information, similar to that given above.

The accountant has traditionally used money as his unit of measure and placed transactions on the monetary scale according to the money units associated with each transaction. If we are told the monetary cost of the purchases and the monetary proceeds from sale, an assessment of the financial outcome of the activities described above could be made. For instance, assume the first purchase of two items cost £100, the subsequent purchase of three items £210 and the sale realised £400. The whole amount of the sales proceeds, £400, was then used to purchase further items for resale. Thus total purchases during the month amounted to £710. These monetary measurements may be used to prepare an accounting statement for the month (see Table 3.1).

Table 3.1 *Profit statement: January* 19*X*4

	£	£
Sales		400
Less cost of sales		
purchases	710	
Less closing stock	400	310
Profit for month		£90

If aggregations and comparisons are used to summarise a large volume of data in order to convey to interested persons the nature of relationships exhibited in that data, it is essential that the selected measurement scale remains stable. For instance, a comparison of the sizes of two fields may be required. If the length and breadth of each field is measured, say in metres, the product of the length and breadth of each provides a measure of its area (size) in square metres. In this case a stable unit of measure, the metre, is used.

However, if the measurement scale is not stable, the size comparisons may be invalid. The product of length measured in metres and breadth in centimetres will have little meaning, and be unsuitable for comparisons of field sizes. The situation would be even worse if the length of the second field was measured in yards and its breadth in inches. However, this does not imply that the individual measurements have no value.

Knowledge that the dimensions of field A are w metres by x centimetres, and field B, y yards by z inches, indicates the sizes of the two fields. Difficulties arise only when attempts are made to aggregate these measurements and to compare the results. The four separate measures are based on different scales, each of which is a stable scale of measurement that may be related to others by conversion factors, e.g. 100 centimetres represents 1 metre. The individual dimensions quoted above could be used to compare the sizes of the two fields – but not by simple aggregation. The individual measurements must be converted to a single scale for measuring length. For instance, metres could be used, in which case the measurement in centimetres must be divided by 100 and the measurements in yards and inches multiplied by 0.9144 and 0.0254 respectively. However, any suitable scale may be selected – even one not used for the original measurements.

Let us return to the business activities reported in Table 3.1. Profit was calculated by comparing the sales during the month with the associated cost of sales and the money unit was used to measure each transaction at the date on which it took place. This is a satisfactory measurement system in so far as the scale of money values remains constant throughout the month.

It was pointed out in Chapter 1 that at the present time the value of money is not constant – it varies from day to day. Accordingly measurements in money units at different dates are not measured on a stable scale of measurement. In a period of inflation the monetary scale is constantly shifting. Most people are aware that £1 in 1957 would buy considerably more than the same amount in 1977. Thus, in the above illustration, if there was inflation in January 19X4 the measurement of profit in terms of monetary units, as reported in Table 3.1, is equivalent to comparing the sizes of two fields measured in metres, yards, and so on.

However, even with annual rates of inflation in the region of 25 per cent the effect of changes in the value of money on the profit

reported for January 19*X*4 is unlikely to be material. But this is due to the simplicity of the illustration. If the holding period for resale items was six months, profit would be calculated by comparing sales in January 19*X*4 with costs incurred (and measured) in the previous July. A decline of, say, 12½ per cent in the value of money during that period would have a material effect on the cost of sales. Even more material effects may ensue if fixed assets purchased many years earlier are used in the process of earning revenue.

So far, the discussion has focused on the profit statement. However, similar problems of aggregation occur in the preparation of balance-sheets. Assets reported in a conventional balance-sheet may be measured in the money units of many different dates. Fixed assets and inventories will be measured on the scale of money values at the dates of their acquisition. Debtors and creditors will be measured at the balance-sheet date, as the amounts outstanding represent the actual indebtedness at that date. Cash is also measured at the balance-sheet date. Owners' equity comprises the capital subscribed by the owners when the business commenced, together with any further amounts of capital introduced and the reserves accumulated out of profits. Accordingly these items may be measured at many different dates.

The above illustration was designed to demonstrate that conventional accounting is equivalent to the measurement of a field by expressing length in metres and breadth in centimetres. However, as in the case of measuring the dimensions of a field, the individual accounting measures are not invalid; the problems arise when the accountants proceed to aggregate the money values measured at different dates.

The Restatement Process

The illustration of the two fields demonstrated that, although the initial measurements may be on different scales, they can be restated in terms of a single measurement scale, provided the relationship between the various scales is known. To compare the sizes of the fields all dimensions were restated in metres (but any other scale for measuring length could have been used). A similar procedure is available for financial measurements. All transactions may be measured in money units at the dates on which they take place,[1] and a restatement process used to convert these measures to a stable

measurement scale. The stable scale is normally the value of money on the last day of the accounting period. However, a known value of money at any other date could be used. For instance, the restatements used in Germany and France during the post-1919 inflation used the value of money for the period prior to the onset of rapid inflation (see Chapter 2).

A link between the value of money at different dates is provided by an index of the general price level. Money has value in so far as it can be used to acquire goods and services, and the value of money is determined by the amount of those goods and services each unit will acquire. If prices are generally rising, the amount to be acquired for a given number of monetary units will decline and the value of money will be falling. A general price-level index measures changes in the prices of goods and services in general and, accordingly, reflects shifts in the value of money.

The general price-level index illustrated in Table 3.2 is assumed to increase by 5 per cent during the first year, 19*X*1, and by 7 per

Table 3.2 *An assumed general price-level index*

Date	Index of general price level	Percentage increase during year
1 January 19*X*1	100.0	
31 December 19*X*1	105.0	5
31 December 19*X*2	112.3	7

cent during 19*X*2. If the index is set at 100 on 1 January 19*X*1 it would stand at 105 at 31 December 19*X*1 – i.e. 5 per cent higher than the 1 January index – and at 112.3 at 31 December 19*X*2. The index of 112.3 represents an increase of 7 per cent on the index one year earlier, namely 105.0. These changes in the index may be illustrated by an example of a basket of goods and services representing a fraction of all the goods and services available within the economy and costing £100 on 1 January 19*X*1. The change in the index implies that an identical basket of goods and services would cost £105 on 31 December 19*X*1 and £112.30 on 31 December 19*X*2. Thus it is argued that in terms of general purchasing power an outlay of £105 on 31 December 19*X*1 or £112.30 on 31 December 19*X*2 is equivalent to an outlay of £100 on 1 January 19*X*1. Accordingly £100 on the scale of money values at 1 January 19*X*1 is

equivalent to £105 and £112.30 on the scales of money values on 31 December 19*X*1 and 31 December 19*X*2, respectively. Furthermore, any transaction on 1 January 19*X*1 may be multiplied by 105/100 to restate it in terms of the scale of money values on 31 December 19*X*1 or by 112.3/100 for restatement at 31 December 19*X*2 money values. Monetary amounts at other dates may also be restated in terms of 31 December 19*X*1 or 31 December 19*X*2 money values by reference to the appropriate index numbers.

This restatement of monetary amounts in terms of the money unit of a particular date enables valid aggregations and comparisons of the restated amounts, as all the transactions are measured against a stable measurement scale – money of a constant purchasing power. In the United Kingdom this method of accounting is called 'current purchasing power accounting' (C.P.P. accounting),[2] while in the United States it is termed 'general price-level accounting' (G.P.L. accounting).

An illustration of the restatement process is given in Table 3.3. Consider two payments, £200 on 1 January 19*X*1 and £350 on 31

Table 3.3 *Conversion of £H to £C*

Date of payment	£*H*	Conversion factor*	£*C* (31.12.19*X*2)
1 January 19*X*1	200	112.3/100.0	224.6
31 December 19*X*1	350	112.3/105.0	374.3
	550		598.9

* Using the general price-level index given in Table 3.2.

December 19*X*1. They may represent the acquisition of two machines or two purchases of items for resale. An accountant would normally record the aggregate of the two payments at £550. However, as each payment is measured against the scale of money values at its transaction date, two separate measurement scales have been used.

The monetary unit used to record a payment at the transaction date may be called historical pounds, with the notation £*H*. The aggregate of several transactions measured in £*H* will be a composite of different measurement scales, unless all the transactions occurred at one date. Each of the transactions may be restated in

pounds of a constant purchasing power, £*C*. However, a constant purchasing power of the money unit can be defined only in respect of some specific date. Accordingly the £*C* notation should always have a date associated with it. For Table 3.3 assume that financial statements are to be prepared at 31 December 19*X*2 and that £*C* is to be measured at that date; hence the use of the notation £*C* (31.12.19*X*2). (This is a complex notation, but it is necessary to explain the measurement unit used. The *Statement of Standard Accounting Practice No. 7* omitted the date from the £*C* notation – an omission which was criticised by the Sandilands Committee.)

As explained earlier the relationship between the value of money at 1 January 19*X*1 and 31 December 19*X*2 is given by the factor 112.3/100 – derived from the general price-level index in Table 3.2. This factor is used to restate the £*H* record of the payment on 1 January 19*X*1 in terms of £*C* (31.12.19*X*2). Similarly, the relationship between the value of money on 31 December 19*X*1 and 31 December 19*X*2 is given by the factor 112.3/105.0. The two transactions, now measured in £*C* (31.12.19*X*2), may be aggregated – the sum is also measured in £*C* (31.12.19*X*2).

As a general rule it may be concluded that the restatement process involves the multiplication of £*H* figures by a factor which comprises as numerator the general price-level index at a selected date (normally, the date of the financial statements) and as denominator the general price-level index at the date each £*H* figure was measured (normally, the date of the original transaction). The resulting figures will be measured in £*C* of the selected date.

Monetary Items

Certain assets and liabilities are expressed as a number of units of money – for instance, balance with bankers or amounts of indebtedness. Such monetary items are not affected by changes in the value of money, although the purchasing power of such items will change with fluctuations in the value of money. When prices are rising the purchasing power of a bank deposit or an amount due from debtors will be falling, and it may be argued that this represents a loss to the business. A business' obligations to its creditors are normally expressed in money units, and as such are an example of monetary liabilities. The purchasing power represented by the claims of these creditors will fall during a period of inflation. It may be argued that

such a reduction in the purchasing power of monetary liabilities represents a gain for the business.

Monetary items were defined by the *Statement of Standard Accounting Practice No. 7* as 'assets, liabilities or capital the amounts of which are fixed by contract or statute in terms of numbers of pounds regardless of changes in the purchasing power of the pound'.[3] Some examples of monetary items are given in Table 3.4. In general terms, the

Table 3.4 *Examples of monetary items*

Assets	Liabilities
Cash	Creditors, including tax payable
Bank deposits	Refundable deposits
Investments – fixed interest	Accrued expenses
Pre-paid expenses	Dividends and interest payable
Bills receivable	Bank overdrafts
Debtors and provision for doubtful debts	Debentures
Advances to employees, suppliers, etc.	Convertible debentures (until converted)
Advance corporation tax	Loans
	Preference shares

policy implication would appear to be that, as far as possible during a period of inflation, a business should be in a net monetary liability position – i.e. where monetary liabilities exceed money assets. A business in such a position will gain from the reductions in the purchasing power of its monetary liabilities to a greater extent than it loses from the fall in the purchasing power of its monetary assets. However, a need for liquid working capital may preclude a business from taking up such a position.

The restatement of transactions involving monetary items may appear inconsistent with the fundamental nature of such items. For instance, a cash sale of £1000 during an accounting period will be restated in constant purchasing power at the date of the financial statements. If the general level of prices increased 10 per cent between the transaction date and the date of the financial statements, the cash sale would be restated at £*C*1100 (period end), i.e. £*H*1000(110/100), for the C.P.P. profit and loss account. This restatement of a cash sale may at first sight appear inappropriate, as the purchasing power of cash holdings declines with increases in the general price level. However, to understand the restatement process

it is necessary to consider both book-keeping aspects of the transaction – the revenue-earning aspect (a credit) and the cash receipt (a debit). At the date of the transaction the business earned revenue of £*H*1000, equivalent to £*C*1100 (period end), and also received a cash receipt of the same amount. For the calculation of net profit measured in £*C* (period end), the revenue should be reported at £*C*1100 (period end) in the C.P.P. profit and loss account. The cash receipt, if still held at the end of the period, will be reflected in the balance-sheet, and will amount to £1000, measured in terms of the purchasing power at that date. Accordingly it should be reported as £*C*1000 (period end). However, the cash receipt at the transaction date, measured in period-end purchasing power, amounted to £*C*1100 (period end). Thus the cash holding has lost purchasing power of £*C*100 (period end). This loss may be reported as an expense in the C.P.P. profit and loss account, in addition to the restated amount for sales revenue. (There is much controversy about the appropriate place to report gains or losses on monetary items, particularly in the case of long-term monetary liabilities. The arguments are discussed in Chapter 4.) It should be noted that the holding loss occurs only if the sales receipt is held in the form of cash (or some other monetary asset). No such loss would be incurred if the cash proceeds were immediately used to purchase non-monetary assets, as their cost would be restated for movements in the general price level.

The above illustration of a loss from holding cash may be generalised into a rule for the calculation of gains or losses from holding monetary items. The amounts of each monetary item at the start and finish of that part of the holding period which falls within the current accounting period should be measured in terms of purchasing power at the date of the financial statements. Differences between the beginning and ending amounts represent, in a period of inflation, a loss in the case of monetary assets, and a gain in the case of monetary liabilities.

In preparing C.P.P. accounts it is not normally necessary to compute separately the gain or loss on each monetary item. It is generally sufficient to compute a single figure for the loss or gain from holding net monetary assets or liabilities by evaluating in terms of period-end purchasing power the amount of monetary assets less monetary liabilities at the start and finish of the accounting period and to make a similar evaluation of the aggregate acquisitions and disposals of

Table 3.5

	£C (period end)
Net monetary assets (liabilities) at start of period	X
Add acquisitions of net monetary assets (liabilities) during period	X
Less disposals of net monetary assets (liabilities) during period	X
Sub-total	X
Net monetary assets (liabilities) at end of period	X
Loss (gain) from holding net monetary assets (liabilities)	X

monetary items during the period. Table 3.5 summarises the appropriate calculations, which are *all* expressed in terms of period-end purchasing power. The application of this method of computing gains or loss from holding of monetary items is demonstrated in Chapter 4 in a general illustration of C.P.P. accounting.

Choice of an Index

References were made above to the role of a general price-level index in the restatement process. Particular attention will now be given to the nature of such an index, and the available alternatives will be indicated. In the preceding sections of this chapter, the general price-level index was used to measure changes in the value of money. It was argued that the monetary scale of measurement shifts as the value of money changes and that the restatement in terms of constant purchasing power is essential for meaningful aggregations and comparisons of transactions occurring at more than a single date.

The notion of purchasing power is not a simple idea. We could think of the power of a money unit to purchase a fraction of all goods and services produced within the economy. In this sense, general purchasing power provides a link between all goods and services produced (the G.N.P.) and the money available to pay for them. As pointed out in Chapter 1 this is the interpretation of the value of money which can be used in a definition of inflation.

If this wide interpretation of purchasing power is adopted, and money values are restated accordingly, the accounting system may

appropriately be termed 'inflation accounting' or 'general price-level accounting'. For this purpose the general price-level index should be as wide-ranging as possible and include the movements in prices of all goods and services produced in the economy. National-income deflators, as described in Chapter 1, provide a suitable index for this purpose. The method of preparing 'general price-level financial statements', recommended by the Accounting Principles Board in the United States,[4] and endorsed by the F.A.S.B. in their exposure draft on inflation accounting,[5] uses the G.N.P. implicit price deflator. A preliminary exposure draft issued in Australia in December 1974 also proposes the use of a national-income deflator.[6]

In the United Kingdom at the present time a suitable national-income deflator is not readily available. The *Statement of Standard Accounting Practice No. 7* prescribed the use of the retail price index in the United Kingdom (and its predecessor, the cost-of-living index, for periods up to the end of 1938; and for subsequent periods until the end of 1961, the consumers' expenditure deflator) and in the Republic of Ireland the official consumer price index. The public statements of the A.S.S.C. are not explicit as to whether the retail price index is recommended as a proxy for a more general index, such as a national-income deflator, or whether an index of consumer prices is considered more appropriate *per se*. Appendix 1 of the statement appears to suggest this latter interpretation, which was also the view that the Sandilands Committee took of the A.S.S.C.'s proposals.[7]

Certain arguments may be advanced to support the use of a consumer price index. Money has value only in so far as it can be used to purchase desired goods and services. If an individual is considered, his money has value to the extent that it will acquire the goods and services he wishes to consume. A change in the prices of his normal purchases implies a change in the value of money to him. To illustrate, consider an extreme case of an individual who lives on bread and purchases no other goods or services, and assume that one money unit would buy eleven loaves of bread at the start of 19*X*1. If one money unit continues to acquire eleven loaves at the end of 19*X*1, the value of money to that individual will remain unchanged, irrespective of any other price changes which may have occurred. However, if at the end of 19*X*2 the money unit will buy only ten loaves, the value of money for the individual will have declined, even if the general price level has remained constant.

A financial statement prepared on 31 December 19*X*2 for the individual who consumes bread only may be designed to reflect the fall in the value of money to him, i.e. the decline in its power to purchase bread. An outlay of £1000 on 1 January 19*X*2 would acquire 11,000 loaves of bread, whereas £1100 would be required to buy a similar quantity on 31 December 19*X*2. Accordingly, a transaction costing £1000 on 1 January 19*X*2 may be restated at £*C*1100 (31.12.19*X*2) in the financial statements for the assumed individual. Such a restatement process will ensure that the measurement scale used is appropriate to the individual receiving the accounting report.

Shareholders in companies (and owners of other businesses) will not live exclusively on bread, but they will normally buy only consumer goods and services, generally at the retail prices. It may be argued that changes in the value of money to shareholders should be used for the restatement process and that such charges are measured by the consumer price index, or an index of retail prices. These index numbers are used to measure changes in the purchasing power of money for consumers. In the above illustration of the individual living on bread, the index used for the restatements was determined entirely by the price of bread. Such an index comprises the effects of inflation and the changes in the relative price of bread. Similarly, a consumer price index will include the effects of changes in the relative prices of consumer and producer goods. Accordingly restatements based on consumer price index numbers are not strictly accounting for inflation – nevertheless they are accounting in terms of constant (or current) purchasing power. However, it is likely that at the aggregate level and in the long run the prices of consumer goods will change in line with the prices of producer goods, as the latter are a component of the former; but there may be a time lag before changes in the prices of producer goods work through to consumer price changes.

This discussion raises an important question concerning the use of a retail price index in C.P.P. accounting. Published indices are based on a sample basket of goods and services, which it is estimated are purchased by an average household. Stockholders in companies are not a homogeneous group, and furthermore are unlikely to correspond with the average household used in the construction of the retail price index. Thus restatements for changes in the published retail price index may at best only be considered a proxy for a

measure of the change in purchasing power of money to individual shareholders. The logic of this argument would seem to imply that to report to each shareholder in terms of his purchasing power would require a separate financial statement for each individual. This is clearly impracticable. Furthermore, the Sandilands Committee pointed out that in so far as shareholders are interested in consumer price movements they will be concerned with the purchasing power of their investments and its associated dividends. For this purpose the shareholders' investment should be measured by its stock-market quotation and not by historical book values contained in the companies' accounting records. Nevertheless C.P.P. accounting, as outlined by the *Statement of Standard Accounting Practice No. 7*, has received support in several countries. In Chapter 4 the nature of C.P.P. accounting will be described in more detail. It will be assumed that an appropriate price-level, or purchasing-power, index is available.

CHAPTER 4

Constant Purchasing Power Accounting II—Application

Measurement of financial transactions in terms of constant purchasing power does not necessarily imply a major change in established accounting principles. Historical cost can be retained as the basis of financial reporting. However, constant purchasing power adjustments may also be applied in accounting systems based on replacement or current costs. In the case of replacement- or current-cost accounting many monetary measures will initially be expressed in C.P.P. and further adjustments will be unnecessary. Nevertheless, as will be explained in Chapter 5 and illustrated in Chapter 6, there are aspects of those accounting systems where C.P.P. adjustments may be appropriate. Despite this general applicability of measurements in constant purchasing power, the terms 'C.P.P. accounting' in the United Kingdom and 'G.P.L. accounting' in the United States are generally applied to a method of historical-cost accounting in which costs are measured in C.P.P. terms. In this chapter such a method of accounting will be illustrated and discussed. Furthermore, the term 'C.P.P. accounting' will be used in this generally accepted manner. None the less, it should be remembered that in its widest interpretation C.P.P. accounting is not a simple alternative to current-cost accounting – the two methods are not mutually exclusive.

In the generally accepted sense of the term, C.P.P. accounting does not violate the principles of conventional historical-cost accounting, with the exception of the measurement unit, which is expressed in C.P.P. However, all other accounting principles remain operative. For instance, the lower of cost and market value rule should still be applied where appropriate – although cost will be measured in C.P.P.

In theory, the preparation of C.P.P. financial statements requires

the restatement of each transaction; but if every transaction were to be restated individually, a completely revised accounting system would be required. However, it is generally envisaged that the C.P.P. financial statements will be prepared by a series of adjustments applied to the information collected by the conventional accounting system. Appropriate assumptions may be made about the timing of production and trading activities during the year and the necessary restatement adjustments computed on an average basis. Available evidence suggests that the most time-consuming aspect of the work will be ascertaining the age of non-monetary items reported on the balance-sheet.[1] A simple illustration of the preparation of C.P.P. financial statements is given below.

Illustration

I.D.C. Limited was incorporated on 1 January 19*X*4, at which date it issued 14,000 ordinary shares of £1 each, payable at once. The cash was received the same day and £10,000 was immediately used to acquire plant. The financial position of the company after undertaking these preliminary transactions is summarised in Table 4.1.

Table 4.1 *I.D.C. Limited – financial position at start of year*

Balance-sheet at 1 January 19*X*4			
	£		£
Issued capital	14000	Plant	10000
		Bank	4000
	£14000		£14000

During 19*X*4 I.D.C. Limited undertook production and trading activities. No further plant was acquired, nor were any dividends paid during that year. The results of the company's activities are set out in Table 4.2 in the form of conventional financial statements. During the year the retail price index moved from 140 on 1 January to 154 on 31 December (for purposes of this illustration, the retail price index is used to measure changes in purchasing power, but other indices could be used – see the discussion in Chapter 3). It may be assumed that the index rose steadily throughout the year and that it stood at 147 on 30 June 19*X*4.

Table 4.2 *I.D.C. Limited – conventional financial statements*

Profit and loss account for year ended 31 December 19*X*4

	£	£
Sales		18000
Purchases	11800	
less closing inventory	3000	
Cost of goods sold	8800	
Other expenses	5700	
Depreciation	1000	
		15500
Net profit for the year		£2500

Balance-sheet as at 31 December 19*X*4

	£	£
Plant at cost	10000	
less depreciation	1000	
		9000
Current assets		
Inventory	3000	
Debtors	2000	
Bank	3000	
	8000	
Less current liabilities		
Creditors	500	
		7500
Net assets		£16500
Represented by		
Issued share capital	14000	
Retained profit	2500	
	£16500	

For the C.P.P. financial statements additional information is required about the timing of transactions and the age of non-monetary assets. The sales, purchases and other expenses may be assumed to have accrued evenly throughout the year. The inventory at the year end may be assumed to comprise items purchased evenly throughout the preceding three months. The date of acquisition of plant was given earlier, i.e. 1 January 19*X*4. Accordingly the measurement scale used for both the plant cost and depreciation charge are known

– i.e. the money unit at the start of the year. The depreciation charge must be measured on that scale in the historical-cost records as it is computed as a proportion of the original cost.

With the above information the C.P.P. financial statements for I.D.C. Limited can be prepared (see Table 4.3). These statements

Table 4.3 *I.D.C. Limited – constant purchasing power financial statements*

Profit and loss account for year ended 31 December 19*X4*

	£*C* (31.12.19*X4*)		*Notes*
Sales		18857	18000 × 154/147
Purchases	12362		11800 × 154/147
less closing inventory	3035		3000 × 154/152.25
Cost of goods sold	9327		
Other expenses	5971		5700 × 154/147
Depreciation	1100		1000 × 154/140
		16398	
Profit from operation		2459	
less loss from holding monetary assets		424	See Table 4.4
Net profit for the year		£2035	

Balance-sheet as at 31 December 19*X4*

	£*C* (31.12.19*X4*)		*Notes*
Plant at cost	11000		10000 × 154/140
less depreciation	1100		1000 × 154/140
		9900	
Current assets			
Inventory	3035		3000 × 154/152.25
Debtors	2000		Monetary asset
Cash	3000		Monetary asset
	8035		
Less current liabilities			
creditors	500		Monetary liability
		7535	
Net assets		£17435	
Represented by			
Issued share capital	15400		14000 × 154/140
Retained profit	2035		Per profit and loss account
	£17435		

are presented in terms of the purchasing power of the pound at 31 December 19*X*4 – written £*C* (31.12.19*X*4). As the retail price index stood at 154 on the date of the statements, the restatement process will involve multiplication of £*H* amounts by 154 and division of the resulting product by the index number for the date on which the historical cost was measured. The relevant calculations are shown in the notes to Table 4.3. (These notes would not form part of the published C.P.P. financial statements; they are included to illustrate the restatement process.)

Consider first the balance-sheet as at 31 December 19*X*4. The plant was acquired at a cost of £10,000 on 1 January 19*X*4 when the retail price index stood at 140. The balance-sheet entry will be £*H*10,000(154/140) = £*C*11,000 (31.12.19*X*4). As the historical-cost depreciation is computed by reference to the original cost, a similar restatement adjustment is required for the depreciation charge in the balance-sheet and also in the profit and loss account. The inventory, however, was acquired during the last three months of the year. Accordingly the movement in the index during that period is required. The published statistics for 30 September 19*X*4 or an approximation based on the annual change could be used. It will be assumed that the index movement to 30 September 19*X*4 is three-quarters of the annual movement. Thus the assumed index for 30 September 19*X*4 is $140 + \frac{3}{4}(154 - 140) = 150.5$. As the inventory is assumed to have been acquired evenly throughout the last three months of 19*X*4 the average price change for that period will be used. A simple average will be taken of the index numbers for 30 September (150.5) and 31 December (154) to provide the index for the restatement of inventory $(150.5 + 154)/2 = 152.25$). This is equivalent to assuming that the inventory was acquired on average half-way through the last three months of 19*X*4.

The debtors, creditors and cash are monetary items already expressed in terms of £*C* (31.12.19*X*4). The monetary amount of these items represents the claims, etc. outstanding on 31 December 19*X*4. The share capital was issued on 1 January 19*X*4. This is the same date as the plant was acquired, and accordingly the adjustment factor will be 154/140. The final item, retained profit, may be treated as a balancing item in the balance-sheet, although it can be verified from the profit and loss account.

The profit and loss account is comprised of aggregations of numerous transactions which occurred throughout the year. If reasonable

assumptions are made about the occurrence of these transactions the restatement process can be applied to the aggregates. For instance, the sales figure represents the total of the monetary amounts of many sales transactions. If we assume that the transactions were spread evenly throughout the accounting period, the average index could be used to restate the total sales figure. In the case of I.D.C. Limited, it was assumed above that sales, purchases and other expenses were spread evenly throughout the year. Thus the average index may be used – i.e. $\frac{1}{2}(154 - 140) = 147$. The closing inventory and depreciation charge are restated as for the balance-sheet.

The remaining item on the profit and loss account to require explanation is probably the most complex. The calculation of the loss from holding monetary assets is explained in Table 4.4. The nature

Table 4.4 *I.D.C. Limited – loss from holding monetary assets*

Net monetary assets account		£*H*	×	÷	£*C* (31.12.19*X*4)
Balances at 1 January 19*X*4					
Bank		4000	154	140	4400
Add sales		18000	154	147	18857
		22000			23257
Less purchases		(11800)	154	147	(12362)
Other expenses		(5700)	154	147	(5971)
Sub-total		£4500			4924
Balance at 31 December 19*X*4					
Debtors	2000				
Bank	3000				
	5000				
Less creditors	500	£4500	Balance at year end		4500
			Loss during year		£424

of this item was discussed in Chapter 3 and the discussion will not be repeated here. However, some comments are required about the methodology adopted. The first step in calculating the gain or loss on monetary items should be the preparation of a statement showing, in monetary amounts, the movement in net monetary assets (liabilities). This will commence with opening balances of monetary items.

The year's transactions involving monetary items will then be entered and the balance should equal the closing amounts of monetary items. Each item should then be restated in the C.P.P. unit. This will include the opening balances as they were expressed in the purchasing power of the money unit at the start of the period. The difference revealed by this statement represents the loss (or gain) during the period as a result of holding monetary items.

Finally, it may be noted that the C.P.P. financial statements presented in Table 4.3 are not fundamentally different from the conventional statements of Table 4.2. Only the unit of measurement for historical costs has been changed. Next, consideration will be given to the interpretation of such C.P.P. statements and the implications of their use for particular purposes.

Interpretation of C.P.P. Accounts

The professional accounting bodies which have supported C.P.P. accounting, for instance the A.S.S.C. in the United Kingdom and the A.P.B. and the F.A.S.B. in the United States, recommended that the C.P.P. financial statements be presented as supplements to the conventional historical-cost statements. It is rarely suggested that C.P.P. accounting should replace the conventional financial statements. Accordingly if C.P.P. accounting is adopted the published annual reports of businesses will contain two sets of financial statements, both reporting on the same financial position and the outcome of the same business transactions and both adopting the same underlying principles; only the measurement scales will differ. It is possible that one scale of measurement may reveal a profit, while the other discloses a loss, and that a strong financial position is shown by one and a weak position indicated by the other. The Sandilands Committee suggested that two sets of financial statements would confuse the majority of users of annual reports; but this will depend on the extent and effectiveness of steps taken by the accounting profession to educate the statement users.

The C.P.P. financial statements may reveal a different view of the profit or loss position from the conventional statements; but it should be understood that the business' profitability is not changed, only the unit of measurement differs. Thus it is incorrect to refer to C.P.P. accounting increasing or reducing profits. Nevertheless it is true that the £*C* profit may be a larger or smaller number than the £*H* profit.

The £*C* profit may be a larger number even in a period of inflation. For instance, the C.P.P. profit and loss account of a business with many monetary liabilities may show a substantial gain from holding such items that more than offsets the effects of restating revenues and expenses.

The recognition of gains from holding long-term monetary liabilities, such as debentures, loan stock and preference shares, is the subject of much controversy. In C.P.P. accounting, as described above, such gains may be recognised in the profit and loss account. However, it can be argued that such gains are not realised, and are unlikely to be realised in the foreseeable future. Furthermore, as debt capital and preference shares are generally regarded as part of capital structure, it is arguable that any recognition of a change in their value should be treated as a capital adjustment.

Although the *Statement of Standard Accounting Practice No. 7* was not explicit, it appears that the C.P.P. financial statements were to be directed towards the equity owners of the business. Accordingly gains to equity (at the expense of debt-holders) could be recognised in the profit and loss account. There is no fundamental principle of C.P.P. accounting which requires this approach to be adopted. If the financial statements are to be directed to all capital-holders (debt and equity) the effects of purchasing power changes on long-term monetary liabilities could be reported as a capital adjustment, via a capital-reserve account.

The statement reacted in the following terms to the argument that these holding gains are unrealised and not available for distribution:

> It has been argued that the gain on long term borrowing should not be shown as profit in the supplementary statement because it might not be possible to distribute it without raising additional finance. This argument, however, confuses the measurement of profitability with the measurement of liquidity.[2]

While the Sandilands Committee agreed that 'profitability should not be confused with liquidity',[3] it suggested that the statement pushed the argument to extremes, and concluded that gains on monetary items should be taken direct to reserves in C.P.P. financial statements. This is an appropriate conclusion, particularly when it is recalled that C.P.P. accounting should reflect the accounting principles followed in the underlying (monetary-unit) financial statements. The realisation and conservatism principles dictate that gains

should not be anticipated; only realised gains are appropriate for the profit and loss account. Thus recognition of unrealised gains from holding monetary liabilities in the C.P.P. profit and loss account is not in accord with the underlying accounting principles.

The Extent of the Difference

In evaluating the extent of the differences between C.P.P. and conventional financial statements, many of the published works used methods similar to the *Statement of Standard Accounting Practice No. 7* and the A.P.B.'s *Statement No. 3* to compute the C.P.P. figures. Accordingly, the gain on long-term monetary liabilities is normally included in the profit and loss account. However, the C.P.P. return on capital employed for U.K.-quoted manufacturing companies prepared by the Accountancy Staff of the Monopolies and Mergers Commission does not include such gains in the profit figures. These calculations will be discussed later.

A pioneering study in this field was undertaken by R. C. Jones,[4] who surveyed nine U.S. steel companies (representing 80 per cent of the industry's ingot capacity) for the period 1941–7. For purposes of the survey, each company's reported financial statements were restated to reflect changes in a consumer price index – a proxy for an index of the general price level. As illustrated in Table 4.5, Jones observed differences of a substantial magnitude. But it should be noted that the period studied coincided in part with the Second World War and relatively high rates of inflation. Subsequent studies, however, have indicated that substantial differences may exist between the conventional and C.P.P. financial statements in years of

Table 4.5 *Some differences observed by R. C. Jones*

Conventional accounts	C.P.P. accounts
Dividends earned by a substantial margin every year	Dividends not earned in any year, 1941–7
Income retained to provide additional capital of $543 million	Dividends, interest and income taxes *paid out of capital* $409 million
Working capital increased 51 per cent during seven-year period	Working capital increased 2 per cent during seven-year period
Fixed assets decreased 6 per cent during seven-year period	Fixed assets decreased 19 per cent during seven-year period

moderate inflation. These differences arise not only from price fluctuations within the accounting period, but also from fluctuations which have occurred since the date of purchase of the oldest asset still in use.

Two more recent studies, one by Rosenfield[5] in the United States and the other in the United Kingdom by Pearcy,[6] support the proposition that substantial differences between C.P.P. and conventional financial statements are not restricted to periods with high rates of inflation. Rosenfield restated the accounts of eighteen U.S. companies, which varied considerably in size and type, although most were listed on American stock exchanges. Table 4.6 summarises

Table 4.6 *Summary of effects of C.P.P. accounting on eighteen U.S. companies*

Company	Excess of reported profits over restated profits (percentage)	Taxation as a prceentage of profits		Dividends as a percentage of profits	
		Reported	Restated	Reported	Restated
A	4	38	39	58	61
B	0	43	44	50	52
C	5	47	49	33	36
D	233	47	75	No dividend	
E	(30)	38	31	74	54
F	10	n.a.	n.a.	44	49
G	8	11	12	61	36
H	20	34	39	72	90
I	11	46	50	54	63
J	15	46	50	32	37
K	12	38	41	43	49
L	13	34	36	80	92
M	(10)	38	35	22	21
N	4	48	50	n.a.	n.a.
O	28	50	57	60	78
P	(26)	36	31	62	48
Q	(12)	39	37	27	24
R	21	46	52	29	37

Note: Brackets indicate that reported profits were less than adjusted profits.
n.a. = not available.

some statistics for 1966, a year in which the U.S. rate of inflation – measured by the G.N.P. implicit price deflator – was 2.7 per cent.

The most striking feature of Rosenfield's results is the variation from company to company, particularly in the excess of reported

over restated profits. Unfortunately the companies are not identified, nor is the nature of their activities indicated. Thus the reasons for the variations are unclear, although differences in amounts and ages of fixed assets and inventories are likely to have been an important factor.

Pearcy also studied a period of moderate inflation. He used the U.K. consumer price index to restate the reported profits of twelve U.K. companies for the period 1958–68. During that period the annual rate of inflation varied from under 1 per cent to a maximum of 4.4 per cent and totalled 29 per cent. Nevertheless Pearcy observed that over the period the aggregate net profits of the companies (reported as £1211m.) were overstated by approximately 10 per cent and the retained profits (£527m.) were overstated by one-quarter. Furthermore, in 1968 the net profits after tax (£191m.) were overstated by 15 per cent, the retained profit (£67m.) overstated by 60 per cent and the net of tax return on ordinary shareholders' funds overstated by 20 per cent.

Table 4.7 *Top-ten 'Gainers and Losers' from C.P.P. accounting*

	Reported profit per share (in historical pence)	Restated profit per share (in C.P.P. pence)	Percentage change in reported profit
Land Securities	5.2	26.6	+414
Metropolitan	7.9	23.4	+195
Commercial Union	12.6	32.5	+158
Sun Alliance	38.1	78.8	+107
Royal	25.6	50.4	+97
St Martin's Property	3.3	5.7	+73
Guardian Royal	14.2	23.2	+63
Grand Metropolitan Hotels	11.0	17.7	+61
General Accident	13.1	21.0	+60
Trust House Forte	10.9	16.8	+54
Tubes	25.7	2.6	−90
Johnson Matthey	16.7	0.6	−96
G.E.C.	7.9	0.2	−97
Ocean	7.0	−0.7	−110
Bowater	5.8	−1.0	−117
Babcock & Wilcox	5.1	−0.9	−118
British Leyland	2.9	−1.2	−141
Vickers	6.0	−3.7	−162
P & O	5.1	−4.7	−192
International Computers	3.3	−13.8	−521

A further study undertaken in the United Kingdom reinforces Rosenfield's findings that differences between the reported and restated figures may vary considerably from company to company. The study, undertaken by Cutler and Westwick,[7] estimated the results of restating the financial statements of 137 companies quoted on the London Stock Exchange. Table 4.7 presents figures for the ten companies with the largest favourable changes in the reported profit number and the ten with the largest unfavourable changes. The table discloses substantial differences. At one extreme the difference between the two profit numbers for Land Securities was four times the unadjusted (reported) profit, while a small unadjusted profit of International Computers was restated as a substantial loss. The median change in profit number (for all 137 companies in the sample) was a reduction of 20 per cent. In other words the C.P.P. financial statement disclosed a lower profit than the reported statements.

The conclusion that C.P.P. profit numbers will be lower on average than the historic profit numbers is supported by the calculations of the Monopolies and Mergers Commission Accountancy Staff. Table 4.8 shows the Commission's estimates of return on

Table 4.8 *Profit rates on total capital employed (quoted companies in U.K. manufacturing industry)*

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974*
Historic	13.3	14.6	13.9	12.0	12.0	13.4	12.4	11.4	12.5	14.9	17.4	17.4
Price-level adjusted	11.1	11.9	10.6	8.8	9.2	9.5	8.2	6.6	6.2	8.7	9.3	5.8

* Provisional.

capital employed for quoted companies in U.K. manufacturing industry.[8] These figures, however, do not include in profit the gains on long-term debt and, as may be expected, the price-level adjusted figures are lower than the historic reported figures. It is interesting to note that the evidence provided by this study and the work of Cutler and Westwick indicates that restatement of financial statements for purchasing-power changes will yield lower profit numbers on average than the reported numbers, whether or not gains on long-term liabilities are regarded as a component of profit.

Implications of C.P.P. Accounting

The expectation that C.P.P. profit numbers will be lower on average than conventionally reported profit has led some businessmen to the conclusion that companies are being 'over-taxed'. This conclusion is suggested because taxation assessments are based on the reported historical-cost profits. However, it relies on the assumption that the tax rate is independent of the tax base adopted. This may not be an appropriate assumption. It is possible that the tax burden of the corporate sector will be computed by an equitable division of the total burden between the various sectors within the economy. The corporate tax rate would then be determined by relating the corporate tax burden to the tax base to be used. Accordingly the rate of tax would not be independent of the tax base, and a change to C.P.P. profits as a tax base would not reduce the aggregate taxation assessment on companies. However, such a change could alter the distribution of the tax burden within the corporate sector. Some companies would have lower tax liabilities while others would be required to pay more.

Equity-financed companies with substantial inventories and many old fixed assets would be likely to pay less tax, as the restatement process will reduce their reported profit numbers. Such companies will probably be in the manufacturing sector – particularly the traditional 'heavy' manufacturing industries, such as shipbuilding, steel, textiles and heavy engineering. The companies likely to pay more tax will probably be in service industries with limited inventories and few fixed assets. Furthermore, if gains from holding long-term monetary liabilities are to be taxed, highly geared companies may pay additional taxes. Thus the largest tax increases will be borne by highly geared service industries, such as property and insurance. These conclusions rely on the assumption that the aggregate taxes paid by the corporate sector are determined by an equitable division of the total tax burden. However, this may be a more plausible assumption than to assume that the tax rate would remain unchanged on the adoption of C.P.P. profits as the tax base.

A further likely consequence of C.P.P. accounting is that companies will appear to be distributing, on average, greater proportions of profits in the form of dividends than is revealed by the conventional financial statements. The extent of the change in the pay-out ratio will vary considerably from company to company. As observed

in the studies discussed earlier, some companies may be paying dividends out of their C.P.P. capital account. Nevertheless the C.P.P. profit and loss account is not the most appropriate basis for determining dividends. Within the constraints set by legal considerations, the dividend decision should generally be based on cash-flow forecasts, together with the appropriate policy requirements, such as maintenance of a stable dividend. The cash-flow forecast will indicate the available resources and assist in planning the schedule for dividend payment. While the C.P.P. financial statements disclose the outcome of distributions, the necessary data for dividend decisions are not provided.

The above brief comments suggest that C.P.P. financial statements are not a suitable basis for dividend decisions. A comprehensive discussion of C.P.P. accounting as a tax base is outside the scope of this book, although some consequences of its adoption were noted earlier. None the less it is interesting to note that in a detailed study of the tax implications of C.P.P. accounting, Morely concluded that the conventional basis of reporting profit is to be preferred for tax purposes.[9] The Sandilands Committee recommended that a major review of the basis of the taxation of profit and income be undertaken. The last major review was undertaken by a Royal Commission which presented its final report in 1955 and worked on the assumption that there would be no major fluctuations in the value of money. As that Commission reported more than twenty years ago and worked on an assumption which is inappropriate today, a new examination of the tax system is clearly essential.

Conclusion

As inflation distorts the monetary measurement scale normally used by accountants, the conventional financial statements comprise aggregations and comparisons of measurements which were made against an unstable scale. C.P.P. accounting involves restating these measurements in terms of a stable unit of measurement, i.e. the purchasing power of money on some specified date. This indicates a fundamental characteristic of C.P.P. accounting, namely stability of the measurement scale. The adjustments for changes in the value of money, which is the essential element of accounting in terms of constant purchasing power, may be used in conjunction with either historic-cost or current-cost methods of accounting. However, most

of the professional accountancy bodies which favour C.P.P. accounting propose that the purchasing-power adjustments be applied to the historic-cost figures used in the conventional financial statements. Such C.P.P. adjustments will not violate the basic accounting principles (except the money-unit principle). (As will be discussed in Chapter 6, professional bodies in the United Kingdom did propose the addition of C.P.P. adjustments to the system of current-cost accounting recommended by the Sandilands Committee.)

The apparent attraction of C.P.P. accounting for professional accountancy bodies is that it does not necessarily involve any major shifts in accounting theory or practice and it lacks both complexity and subjectivity. The C.P.P. adjustments are relatively easy to apply in existing accounting systems and do not require any subjective evaluations (such as the valuation of assets). However, to argue that C.P.P. accounting should be adopted because it does not fundamentally change existing accounting practice implies that historical costs provide the most useful information. This assertion may be challenged. The nature of financial reporting and the characteristics of useful information are discussed in Chapter 7. For the present it should be pointed out that the Sandilands Committee considered the application of C.P.P. accounting to historical-cost methods to be of limited value. The committee concluded its discussion of C.P.P. adjustments in conventional accounting with the following statement: 'The usefulness of the information given in CPP supplementary statements will always be constrained by the deficiencies of the basic historic cost accounts to which they are attached.'[10] The Sandilands Committee favoured an application of current-cost financial reporting. They suggested that the inclusion of C.P.P. adjustments in the current-cost financial statements would add no useful information. Furthermore, they concluded that such purchasing-power adjustments would tend to make financial statements too complex and would also confuse users. The nature of their proposals will be discussed further in Chapter 6. Before looking in detail at these proposals, the concepts of current-value accounting are discussed in Chapter 5.

CHAPTER 5

Current-Value Accounting I—Concepts

Reference was made at the end of Chapter 4 to the assertion by the Sandilands Committee that the usefulness of C.P.P. financial statements will always be constrained by the deficiencies of historical-cost accounting. The introduction of concepts of value into financial statements, as recommended by the Sandilands Committee,[1] implies a fundamental departure from the principle of historical cost. The objectivity of historical-cost measurements has been claimed as an important advantage of traditional accounting practice. The introduction of values into financial statements has been resisted because of the suggestion that they cannot be determined objectively. The following statement by Kelly is typical of the attitude of many accountants in past years:

> [To] cut loose from the moorings of historical cost would open up a Pandora's box of confusions, annual appraisals, complications and adjustments to recorded dollar values . . . since objective measurements beginning with the historical cost of fixed assets would be cast aside and be superseded by subjective measurements.[2]

The important question not considered in such objections to the use of values is whether the objective information provided by the historical-cost financial statements is more useful than some alternative subjective information. The Sandilands Committee's conclusion was that values are likely to be more useful than historical costs to the users of financial statements. The usefulness of accounting information in financial reporting is discussed in Chapter 7. For the present attention will be directed to the characteristics and techniques of value accounting, with particular emphasis on the use of current values. A comparison of historical costs and current values

in financial statements is as important in a period when the general price level is stable as when there is inflation. Current values are usually measured by the prices of specific goods and services, and these may change as a result of shifts in relative prices, even if the general price level is unchanged. Accordingly current-value accounting is, strictly, not a method of inflation accounting. However, if assets and liabilities are reported at current values – i.e. their values at the balance-sheet date – many of the distortions which inflation causes in conventional financial statements would be avoided. None the less, as will be demonstrated later, there are circumstances in which general price-level adjustments can be applied in current-value accounting. Thus C.P.P. accounting should not be considered as an alternative to current-value accounting. The appropriate comparison is between historical costs and current values. A supplementary question may then be raised: 'should C.P.P. adjustments be applied?'

The application of C.P.P. adjustments to historical-cost accounting was discussed in Chapter 4. In this chapter, the conceptual nature of current-value accounting is discussed, and in the next chapter certain techniques of current-value accounting will be illustrated, including the application of C.P.P. adjustments.

Concepts of Value

According to economic theory the value of an asset to an individual is determined by the pleasure (usually called 'utility') he will derive from consuming it or from consuming the benefits arising from it, either at the present or some future time. A business, however, cannot experience pleasure, although its owners may do so. Pleasure is of a psychological nature experienced only by individuals. Thus a different approach must be adopted to define the value of an asset to a business. A business undertakes various exchanges of resources and distributes any surplus to its owners.[3] (These distributions provide a means for individual owners to undertake consumption immediately or at some future date.) The ability of an asset to generate resources in the exchange process indicates its value to the business. This may be called 'exchange value', which can be measured in money units.

The market price of any resource reflects its exchange value at a particular date. But as prices change so also do exchange values.

Thus, to value assets at their exchange values, it is essential to determine the appropriate date for recording market prices. A consideration of past, present and future exchanges or potential exchanges lead to three possible approaches, each of which could be used. Probably the most appropriate past exchange is the acquisition of the asset. An appropriate future exchange would be the disposal of the asset, or of the goods, etc. which are produced by the use of the asset. Another possible exchange is a potential exchange at the present time.

In addition to the time dimension of exchange value, the direction of the exchange must be considered. The exchange value of an asset on entry to the business may be appropriate, or alternatively, the exchange value on exit could be used. Entry and exit values correspond directly to buying and selling prices. If the market for an asset was 'perfect' (in the economic sense), entry and exit values at any date would be identical. Unfortunately this is rarely the case; for instance, the buying and selling prices of a used motor-car can differ considerably.

If the timing and direction of exchanges are considered together, there are six potential concepts of value. These are illustrated in Table 5.1. Each of these concepts may be further subdivided according to the form of the asset to be valued. Edwards and Bell suggested

Table 5.1 *Concepts of value*

	Direction of exchange	
Time of exchange	Entry values	Exit values
Past	Historical cost	(Irrelevant)
Present	Current replacement cost	Current selling prices
Future	Expected replacement cost	Expected values

three categories for the form of assets – (i) initial inputs, (ii) present form and (iii) ultimate form.[4] They used the illustration of valuing a chair frame to explain this taxonomy. The chair frame could be valued in terms of a list of inputs, such as wood, labour, nails, etc. required to produce its present form. Each of these initial inputs could be valued separately. Alternatively the chair frame could be

valued according to its present form using past, present or future values. The third alternative would be to value the asset as it is ultimately expected to be produced, less the required additional inputs; for instance, the chair frame may be valued as an easy chair, less springs, cloth, padding, labour, and so on.

The combination of the classifications of asset form and the six concepts of value illustrated in Table 5.1 suggests eighteen ways of valuing assets. However, some combinations may be irrelevant. For instance, the past entry value is unlikely to be appropriate for the valuation of an asset in its ultimate form, nor is the future exit value likely to be appropriate for the initial inputs. In general past and future values are only likely to be relevant when used in connection with the initial inputs and the ultimate form of the asset respectively. However, present (or current) values could be used in the valuation of assets in any of the three forms. But in general, current entry values are appropriate for initial inputs and present form, whereas current exit values are more consistent with the present and ultimate forms.

Of the six concepts illustrated in Table 5.1, one is irrelevant – i.e. past exit value, and the expected replacement cost (future entry value) is not seriously advocated for the valuation of business assets. This leaves four methods of valuing business assets.

(I) HISTORIC COST

Past entry values are used in conventional accounting to value the initial inputs in terms of historical costs. Little further comment is required, except to point out that historical cost is a particular concept of value. The difference between conventional historical-cost and current-value accounting is the timing of the values adopted and not the use of value *per se*.

(II) CURRENT REPLACEMENT COST

Present entry values (usually termed 'current replacement costs') represent the costs which would be incurred today to acquire identical assets or their equivalents. The current market-buying prices (or some proxy thereof) may be used to value assets either in their present form or in terms of their initial inputs. If the 'going-concern' assumption is applicable it may be argued that assets will be replaced in the normal course of business. Accordingly there are arguments for the valuation of all assets constructed within the business by

reference to their initial inputs. However, it may not always be appropriate to assume that all assets will be replaced in an identical form, or even replaced at all. (The replacement of assets is discussed below in the section on 'current-value accounting'.)

(III) CURRENT SELLING PRICES

The present exit values are the prices at which assets could be sold in a normal business transaction. This excludes the conditions of a forced sale on liquidation of the business. None the less, the form in which the asset is to be valued must be considered. The selling prices of assets in their present form could be used. Alternatively value may be determined using the current selling prices of the ultimate forms, less the current cost of additional inputs. As the latter appears to closely resemble a sale in the normal course of business, it is the method generally favoured in this context by the advocates of current selling prices.

(IV) EXPECTED VALUES

The future exit values are the values expected to be realised at the time of ultimate sale in the normal course of business (less the expected cost of any additional inputs).[5] Accordingly the most appropriate form of the asset is its ultimate form. Assets which are held for production should be valued at the expected value of the goods to be produced by those assets, less the expected costs of additional inputs. As the expected receipts (and outlays, where appropriate) arise in future periods, discounting techniques are used to determine the present value (for an explanation of discounting techniques, see the appendix to Chapter 8). This interpretation of expected value is consistent with the concept of value contained in the economic theory of income.

Economic Income

Much contemporary thought about current-value accounting has derived from the economic concepts of 'income' and 'value' developed by Fisher and later extended by Hicks. These concepts were initially discussed in relation to the income of an individual, but have subsequently been extended to the measurement of business income. Hicks defined income of an individual as the 'maximum

value which he can consume during a week, and still expect to be as well-off at the end of the week as he was at the beginning'.[6] In developing an operational measure of income from such a definition, a major difficulty arises with the interpretation of the term 'well-off'. Hicks suggested the capital (or present) value of prospective receipts as a measure of 'well-offness'. This led to the idea of income as the residue available for consumption after the capital value of prospective receipts has been maintained intact.

Such a concept of income may be readily adapted to the measurement of business income. Accordingly income of a business is the amount by which its capital value (measured by the present value of prospective receipts) increases during the measurement period, due allowance being made for any new capital introduced and capital or dividends distributed. This definition can be expressed in the form of an equation for economic income in period n, Y_n^e, as follows:

$$Y_n^e = C_n + (K_n - K_{n-1}), \tag{5.1}$$

where C_n is the net distribution[7] to the owners of the business during the period, and K_{n-1} and K_n are the capital values at the start and end of the period respectively. In this context capital value is measured by the present value of prospective receipts, which may be expressed thus:[8]

$$K_n = \sum_{j=n+1}^{\infty} \frac{C_j}{(1+i)^{j-n}}. \tag{5.2}$$

In words, the capital value at the end of period n, K_n, is measured by the present value (discounting at the market interest rate, i) of the net distributions to the owners, C_j, for all future periods.

This measure of capital value should represent the maximum amount a potential buyer would be prepared to pay to acquire the business. However, it is a subjective estimate and will depend on expectations of future receipts (and also on the discount rate used). Herein lies a major difficulty of using economic income in financial statements. Estimates are required of future cash flows. Senior management may be qualified to make such estimates, but independent verification would be impossible. Furthermore, economic income is of limited value to management for use in their decision-making. Economic income is calculated by reference to future cash flows which cannot be estimated until decisions are taken about

future activities. Accordingly economic income is an unsuitable basis for decision-making; it cannot be computed until decisions have been taken. In view of these problems alternative concepts, such as current-value accounting, have been proposed.

Current-Value Accounting

The term 'current-value accounting' is used here to describe those accounting methods in which asset values are determined by reference to the present time dimension of value. There are a number of accounting methods which may be included within this definition of current-value accounting. The basic definition of income discussed earlier will be used, but the measurement of capital value must be amended. In general terms, income for a period may be defined as the amount by which capital value at the end of the period exceeds the amount required to maintain intact the capital value at the commencement of the period. (In the accounting literature, particularly in the United Kingdom, the terms 'income' and 'profit' are frequently used interchangeably. Accordingly this definition of income will be used to discuss business profit.)

The above general definition of income comprises two separate elements:

(i) The measurement of capital value (asset valuation); and
(ii) the measurement, at the end of the period, of the amount required to maintain intact the capital value at the start of the period (capital maintenance).

It is important to distinguish between these two elements of a profit measure, as different concepts may be used for each. The measurement of capital value involves the valuation of the business' assets and liabilities. As discussed above, even within the framework of current value there are several concepts of value which could be used. The other element of profit measurement, capital maintenance, may appear to be a straightforward concept. For instance, the capital to be maintained could be simply the capital value computed at the commencement of the period. But such a money-value approach is only one possible capital-maintenance concept. When prices are rising it may be appropriate to maintain the purchasing power of the initial capital value and not merely its money value. Alternative concepts of capital maintenance will be discussed later in this

chapter. For the present the application of current values to the asset-valuation element of profit measurement will be examined.

The two aspects of current value discussed earlier were present entry prices (replacement cost) and present exit prices (selling prices). Both these concepts of value have their advocates, who argue that their particular preference is the most appropriate method for financial reporting. Replacement cost has been advocated by many writers over the years, with a notable work published in 1961 by Edwards and Bell.[9] Exit prices have not received such widespread support as replacement costs, but their advocates have been very enthusiastic in expressing their support. MacNeal[10] was an early supporter of selling prices, and in recent years the case has been strongly advanced by Chambers[11] and Sterling.[12]

These two aspects of current value suggest two separate concepts of business profit. Exit prices represent the opportunity costs of using resources in the business rather than disposing of them. Accordingly a measure of realisable profit in which assets are valued at exit prices will indicate the short-run return to the business from using or holding its assets rather than selling them. The use of entry prices, however, will provide a long-run evaluation in the form of a measure of replacement-cost profit. It can be argued that for a business to continue its operations in the long run it must replace the assets used in production and, accordingly, replacement costs should be used for asset valuation. However, entry and exit prices need not be considered mutually exclusive. Although Edwards and Bell accepted the contention that replacement-cost profit and realisable profit provide different information, they made the following comment on the use of entry and exit prices: 'it is our feeling that a strong case can be made for the incorporation of both sets of data in the accounting records'.[13] This is an interesting suggestion which has also been advanced by other writers and was favoured by the Sandilands Committee. Edwards and Bell, however, ultimately concluded in favour of replacement costs. This conclusion was based on their particular views of the information needs of the users of financial statements. They were primarily concerned with the presentation to managers of information which would assist the evaluation of past decisions. They favoured replacement-cost profit (or, in their terminology, 'business income') because it reports business performance on the going-concern assumption which presumably underlies managers' *ex ante* evaluations of potential outcomes.

Although the work of Edwards and Bell is frequently quoted as an important element of the case for replacement-cost accounting, it should be remembered that their conclusion in favour of replacement costs was based on a particular view of the information needs of an assumed group of users of financial statements. The arguments for and against the various aspects of current-value accounting cannot be finally resolved without a clear specification of the information needs of users of financial statements. The objectives of financial reporting are discussed in more detail in a later chapter. However, at this point the conclusions of the Sandilands Committee should be mentioned. They considered the information needs of a number of potential statement users and concluded that both entry and exit prices should be used for asset valuation. They favoured the concept of *value to the business* – which is discussed below.

A concept of asset value is required to provide a measure of capital value for a business. Accordingly it would seem appropriate to value assets at their value to that business. For this purpose use can be made of the concept of value to the owner – which is sometimes termed 'deprival value'. This represents the maximum loss the owner would suffer if he were deprived of the asset concerned, for instance by an uninsured loss. This concept was adapted by Bonbright from legal interpretations of value[14] and developed in recent years by other writers.[15]

Value to the owner can be measured by the loss which would be suffered if the business was deprived of the asset.[16] Replacement cost (RC) of an asset will normally provide the upper limit to its value, as the loss suffered will not normally exceed the cost of its replacement.[17] Other possible values include net realisable value (NRV)[18] and the present value of the net cash receipts expected from use of the asset (PV). There are six possible permutations of RC, NRV and PV, as follows:

(1) $NRV > PV > RC$
(2) $NRV > RC > PV$
(3) $PV > RC > NRV$
(4) $PV > NRV > RC$
(5) $RC > PV > NRV$
(6) $RC > NRV > PV$

To determine value to the owner these six cases should be divided into two groups according to whether the asset should be held for use or resale. An asset should be held for use only where $PV > NRV$. Thus the two groups appear as follows:

Use	*Resale*
(3) $PV > RC > \mathcal{N}RV$	(1) $\mathcal{N}RV > PV > RC$
(4) $PV > \mathcal{N}RV > RC$	(2) $\mathcal{N}RV > RC > PV$
(5) $RC > PV > \mathcal{N}RV$	(6) $RC > \mathcal{N}RV > PV$

However, within the use group $\mathcal{N}RV$ is irrelevant, as also is PV in the resale group. Furthermore, as pointed out above, RC is the upper limit of value to the owner. Thus, if we eliminate the irrelevant $\mathcal{N}RV$s and PVs, together with values greater than RC, the six cases can be reduced to the following:

Use	*Resale*
(3) RC	(1) RC
(4) RC	(2) RC
(5) $RC > PV$	(6) $RC > \mathcal{N}RV$

This indicates that in cases 1–4 RC represents value to the owner. But in case 5 $RC > PV$, which suggests that the asset will not be replaced when fully used. RC is not the relevant measure of value. In this case the asset should be valued at PV. In case 6, where $RC > \mathcal{N}RV$ of an asset held for resale, the asset will not be replaced when sold, and accordingly $\mathcal{N}RV$ becomes the appropriate measure of value. These conclusions may be expressed as a general rule in the following form: the value of an asset to its owner (business) = RC, except where:

(1) the replacement cost of an asset held for use exceeds the present value of the net receipts expected to be derived from its use – in this case value to the owner should be measured by the present value of expected receipts; and where

(2) the replacement cost of an asset held for resale exceeds its net realisable value, in which case it should be valued at net realisable value.

Analysis of this nature has led some writers to conclude that in most cases replacement cost will be relevant, and therefore should be used to value all business assets.[19] However, such a conclusion relies on the assumption that cases 5 and 6 will not occur or will occur very infrequently. This is an empirical question which has not been fully explored. It is not too difficult to suggest situations in which cases 5 and 6 may arise. For instance, a business in a declining industry may be in a position where the cost of replacing certain of

its fixed assets will exceed their present values in use – a case 5 situation. Furthermore, the replacement cost of certain of its inventories may exceed their net realisable values – a case 6 situation. In general it may be appropriate to record all asset values initially at replacement costs, and subsequently to write down to present values those assets held for use whose $RC > PV$, and to net realisable value those assets held for resale whose $RC > NRV$. This is the method of valuation favoured by the Sandilands Committee, which pointed out that the approach is similar to certain aspects of conventional accounting practice.[20] At the present time all assets are recorded at historical cost (HC), but assets held for resale may be written down to NRV, if $HC > NRV$ and, furthermore, assets held for use should be written down to PV, if $HC > PV$. (Writing down assets – such as fixed assets – to PV when $HC > PV$ is not widely practised because of the difficulties of measuring PV. None the less, it is generally regarded as a desirable accounting principle.)

The proposal that financial statements contain a mixture of RC, PV and NRV has been advanced by writers in recent years – but not without attracting some criticism. It has been argued that the aggregate valuation of the business is meaningless when a heterogeneous mixture of asset values is used.[21] However, the meaning of an aggregate valuation based on exclusive use of either replacement costs or exit values may also be questioned. In each case, whether a single concept or several concepts of value are used, it is difficult to ascribe a meaningful interpretation to the aggregate capital value – other than to describe it as the sum of the individual asset values. The aggregate value of the assets is unlikely to be the value of the business as a whole, which should be determined by reference to its market price (if one is available) or by estimating the present value of its future net receipts.

For purposes of income and profit measurement it is not the amount of the aggregate asset value which is important, but the changes therein. Thus, if a heterogeneous mixture of entry and exit prices provide a useful measure of income, they should not be rejected because the aggregate capital value does not exhibit meaningful characteristics, beyond being the sum of the individual asset values. The Sandilands Committee concluded that such a heterogeneous mix of asset values would provide the information needed by users of financial statements.

Holding Gains

An interesting aspect of current-value accounting is the distinction usually made between operating and holding activities. This distinction could be important as factors influencing these two elements of business operations can differ. Edwards and Bell explained the distinction by means of the following illustration.[22] For simplicity assume that production is timeless and that only holding activities take time. Further, every accounting period is assumed to comprise a large number of *holding intervals*, each preceded by a *production moment* during which actual production takes place.

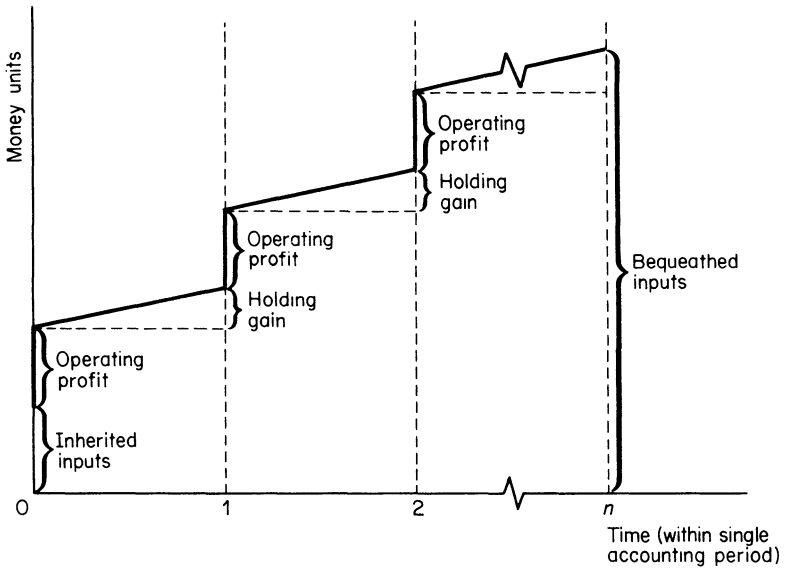

Figure 5.1 *Production and holding activities*

A business will normally commence each accounting period with a collection of assets inherited from the previous period – termed 'inherited inputs'. Production and holding activities are illustrated in Figure 5.1,[23] which shows diagrammatically the changes in the current value of the business' assets (inputs). As production moments are timeless, the current values of assets not directly involved in the productive process will remain unaltered. Accordingly any increase

in the current value of assets at the production moment must be attributable to production. For this purpose production should be defined to include all types of transformation of resources – e.g. raw materials and labour inputs into finished goods, and also inventories into cash or debtors. An increase in the current value of assets arising from such production may be termed 'operating profit'.

Between each production moment there will be a holding interval, during which no production takes place. Any change in the current value of assets during such a period will result from changes in the prices used to value the assets held by the business. An increase in the current value of assets during the holding interval is termed a 'holding gain'. The aggregate current value at the end of the interval will provide the initial valuation of inputs for the subsequent production moment.

This illustration demonstrates the fundamental distinction between production and holding activities. Production involves a transformation of resources, while holding involves only ownership of inputs. Operating profit, which measures the surplus from productive activities, is computed by comparing the current values of output with the current values of the resource input. Holding gains measure the impact of changing prices on the current value of the business. These measures may be demonstrated by a simple numerical illustration.

A business commences operations on 1 January 19*X*1 with £2000 cash and immediately uses that whole amount to acquire an asset. When the asset is sold on 31 December 19*X*2 for £2750, an historical-cost profit of £750 will be reported in the financial statements for the year to 31 December 19*X*2. However, if replacement costs are used to value the asset, holding gains may be reported in both 19*X*1 and 19*X*2, and an operating profit on 31 December 19*X*2. It will be assumed that the replacement cost of the asset was £2200 on 31 December 19*X*1 and £2500 on 31 December 19*X*2. Accordingly the operating profit and holding gains can be computed as shown in Table 5.2.

The operating profit and holding gains sum to the historical-cost profit, but they are reported in different periods. It may be noted that in this illustration the operating profit was not recognised until realisation, whereas part of the holding gain was recognised prior to the sale. Some writers suggest that realised and unrealised holding gains should be reported separately.[24] For instance, the holding gain

Table 5.2

1 January 19*X*1			
At start of business	£2000		
After acquisition of asset	£2000	*Holding gain* in year to 31 December 19*X*1	£200
31 December 19*X*1	£2200	*Holding gain* in year to 31 December 19*X*2	£300
31 December 19*X*2			
Prior to sale	£2500	*Operating profit* at 31 December 19*X*2	
After sale	£2750		£250

reported in the year to 31 December 19*X*1 could be deemed unrealised, as the asset was still held at the year end. Then, during 19*X*2 a total holding gain of £500 is realised. This realised gain comprises a holding gain during 19*X*2 of £300 and the previously reported unrealised holding gain of £200. In the terminology of replacement-cost accounting, holding gains are sometimes called 'cost savings', as they represent the additional cost which would have had to be incurred if the asset was acquired at the time of sale.

Similar principles, but different figures, are involved when exit prices are used to measure current values. If it is assumed that the selling price of the asset was £2350 on 1 January 19*X*1 and £2500 on 31 December 19*X*1, holding gains and operating profit can be reported as shown in Table 5.3.

Table 5.3

1 January 19*X*1			
At start of business	£2000	*Operating profit* at 1 January 19*X*1	£350
After acquisition of asset	£2350	*Holding gain* in year to December 19*X*1	£150
31 December 19*X*1	£2500	*Holding gain* in year to December 19*X*2	£250
31 December 19*X*2			
Prior to sale	£2750		
After sale	£2750		

Once again operating profit and holding gains total to the historical-cost profit. However, in this case operating profit is recognised prior to realisation. Edwards and Bell call this concept 'realisable operating profit', and they refer to the holding gains as 'capital gains'. The most important difference between this illustration and the earlier illustration of the replacement-cost measures is the time at which operating profits are recognised. However, both approaches provide a clear distinction between operating and holding activities. If both entry and exit prices are used in a value-to-the-owner framework, any changes in the basis of valuation, e.g. from entry to exit prices, should be reported independently of the holding gains.

There has developed an interesting literature on the subject of dichotomising income into holding and operating components.[25] The justifications for such a dichotomy can be divided into three principal cases:

(i) The two categories of income may be used to *evaluate different kinds of decisions*. Holding gains arise from decisions to hold particular amounts of certain assets, whereas operating profits arise from decisions to use particular assets. It may be argued that a separation of holding gains from operating profits will assist the evaluation of outcomes from these different types of decisions. However, it should be pointed out that holding and operating activities are not always independent. For instance, a single investment decision could result in holding gains if prices of capital goods subsequently rise, and also operating profits if the business' efficiency is improved.

(ii) The dichotomy will permit *better inter-period and inter-firm comparisons* of operating performance. It is argued that the elimination of price-change effects from the evaluation of productive operations should improve inter-period and inter-firm comparisons of productive efficiency. However, possible trade-offs between holding and operating activities cast some doubt on this argument. In particular the interdependencies between holding and operating activities may vary from business to business or from period to period, and comparability is thereby affected. However, the extent of any interdependencies and their impacts on comparability is an empirical question which remains unresolved.

(iii) Operating income is a better measure of a business' long-run income and it is consequently a *better forecaster of the future income stream*. This justification, which appears to provide the strongest case

for dichotomising income, has been developed as an argument for the replacement-cost measure of operating profit.[26] However, the extent of the predictive ability of this, or any other income measure is an empirical question, still to be thoroughly investigated.

The separation of holding gains and operating profit leads into another area of controversy. Should holding gains be reported in a statement of income? To discuss this question attention must be directed to the second element of the definition of income – i.e. the concept of 'capital maintenance'.

Capital Maintenance

The treatment of holding gains in financial statements was not explicitly discussed above, as their presentation depends on the concept of capital maintenance selected for financial reporting. A holding gain may be regarded as an element of profit and reported in the profit and loss account. Alternatively all or part of the holding gain may be reported as a capital-maintenance adjustment on the balance-sheet. Such an adjustment purports to restate the capital value of the business at the start of the accounting period for changes in the prices used to value that capital.

The earlier discussion of economic income led to the proposition that a business can be deemed to have earned a profit during an accounting period only if its starting capital value is maintained intact. However, there are a number of concepts of capital maintenance, each implying a different treatment of holding gains. Three important concepts are discussed below: (i) money value; (ii) purchasing-power-adjusted money value; and (iii) operating capacity.[27]

(i) MONEY VALUE

This concept of capital maintenance should be familiar to most accountants. A profit is reported when the closing capital value exceeds *the monetary amount* of the capital value at the start of the period (appropriate adjustments being made for distributions and new capital introduced). For instance, a business that started the current accounting period with a capital value of £1000 and finished with £1400, after distributing a dividend of £100, might report a £500 profit. The amount required to maintain the money value of the starting capital is £1000. However, at the end of the period the business had capital of £1400, and a further £100 had already been

distributed. The £500 surplus may be reported as profit. This would be conventional accounting if the capital value was measured in historical costs; but in the present discussion only the capital-maintenance concept is considered and any method of asset valuation could be used, including historical cost, current value, and so on.

If the money-value concept of capital maintenance is adopted, all increases in capital value are deemed to be profit. Thus increases in capital arising from movements in the prices used for asset valuation – i.e. holding gains – should be reported in the profit and loss account.

(II) PURCHASING-POWER-ADJUSTED MONEY VALUE

The case for a purchasing-power adjustment to the money value of opening capital can be argued on two similar, but distinct grounds. These separate lines of argument lead to purchasing-power adjustments based on different index numbers.

First, the arguments outlined earlier to introduce C.P.P. accounting may be advanced, namely in periods of unstable prices money values at different dates are measured on different scales. To compute profit on a stable measurement scale the money value of the opening capital should be restated in terms of the purchasing power of money at the date of the financial statements. Such an argument would seem to suggest that the money amount of the opening capital value should be adjusted for the movement in the *general level of prices*, for instance, as measured by a G.N.P. price deflator.

The alternative arguments for a purchasing-power adjustment stem from the views that a business is an investment owned by certain individuals, and capital value measures the extent of their ownership interest. It is argued that the real benefit accruing to the owners of a business is computed only when adjustment is made for changes in the purchasing power of their investment. Accordingly the purchasing-power adjustment should reflect changes in the purchasing power of the owners, probably measured by a general index comprising the prices of the goods and services normally consumed by shareholders, and other business owners.

Both lines of argument have been advanced in the current-value literature, although the more common is the latter, which suggests an index of changes in the purchasing power of a particular group of individuals, namely the business owners. However, it has already

been noted that a single index is unlikely to be appropriate for all the individuals within such a group (see the discussion of the 'choice of an index' in Chapter 3). A single index can, at best, only reflect the purchasing power of some *average* investor. This line of reasoning may suggest that a separate financial statement is required for every investor – each statement reflecting the change in that investor's personal purchasing power. Fortunately this conclusion is not inevitable. When assets are reported in current values all amounts are measured on a constant scale, i.e. the money unit at the date of the financial statements. Accordingly the opening capital value can be adjusted for purchasing-power changes by restating the capital value reported in the previous period's financial statement for the subsequent change in the selected purchasing-power index. As different index numbers are appropriate for various investors, it would seem desirable to allow the individual to compute his own adjustment, using his personal index number. The individual may compute the adjustment explicitly or he may take implicit account of the required adjustment in his interpretation of the financial statements by considering whether the money return earned by the business is sufficient to offset purchasing-power fluctuations. Thus it may be sufficient to simply report the change in the money capital and leave the purchasing-power adjustment to the financial-statement reader.

However, if capital value is to be adjusted for purchasing-power changes, using some average index, the total amount of the holding gains (as defined above) will not be reported in the profit and loss account. In this case, only the *real* holding gains, i.e. the holding gains in excess of the amount required to maintain the purchasing power of the opening capital value, will be reported as profit. For an individual asset, the real holding gain is the excess of the increase in its current value above the amount required to maintain the purchasing power invested in it. The relative price changes during each period give rise to these real holding gains (or losses). As the relative prices of monetary assets decline during a period of inflation, real losses will be incurred by holding such assets when prices are rising. Conversely, real holding gains will arise from holdings of monetary liabilities.

(III) OPERATING CAPACITY

Capital value at any date may be computed by valuing the business' assets (less liabilities) at that date. The total assets represent a parti-

cular level of operating capacity available to the business. When current values are used for asset valuation, the aggregate asset value measures the current value of the existing operating capacity (as represented by a certain quantity of assets). It may be argued, in terms of Hicks's definition of income, that a business is not as 'well-off' at the end of the period as it was at the beginning unless it has at least maintained its capacity to continue its operations at the same level – i.e. unless it has maintained its operating capacity. A business which consistently fails to maintain its operating capacity will decline. It may be argued that such a business should not be considered profitable. Accordingly a profit should be reported only when operating capacity, as represented by a collection of assets, has increased. Any changes in capital value arising from movements in the prices used to value those assets should not be considered as an element of profit, but as an adjustment to the opening capital value. This implies that if the operating-capacity concept of capital maintenance is adopted, holding gains will not be reported in the profit and loss account.

This concept of capital maintenance rests on the assumption that the business is a separate entity which can be considered separately from its owners. The owners are viewed as the suppliers of a resource, namely equity finance, and they are considered comparable with other suppliers, e.g. of debt finance, of raw materials, of labour, and so on. The business may be comprised of various interest groups, but it is assumed to possess its own identity and existence, and it is expected to continue at least for the foreseeable future. The assets of the business are seen as the means of continuing operations, and unless the operating capacity is maintained by current operations the business is unprofitable. Accordingly it is the value of the assets to the business which is considered important for this concept of capital maintenance.[28] This is the concept of capital maintenance favoured by the Sandilands Committee, although they also suggest that total holding gains should be disclosed separately in a note to the financial statements.

Summary of Concepts

It is now appropriate to consider the various possible combinations of asset-valuation methods and capital-maintenance concepts. Particular combinations have been advocated from time to time. Table

5.4 shows the principal combinations which have been suggested, and indicates some of the advocates.[29] Cells marked √ are feasible and could possibly be supported; those left blank are not considered feasible. For purposes of comparison, the asset-valuation methods based on historical costs have been included. It may be observed from the table that there are several combinations which could be described as methods of current-value accounting. Thus, in a discussion of a system of current-value accounting, the method of asset valuation and the concept of capital maintenance should be specified. Some of these current-value accounting methods are illustrated in the next chapter.

Table 5.4 *Asset-valuation methods and capital-maintenance concepts*

Asset-valuation methods	Capital maintenance concepts: Money value	General purchasing power	Shareholder purchasing power	Operating capacity
Historical-cost methods				
Money value	Ijiri[30]			
General purchasing power		F.A.S.B.[31]		
Shareholder purchasing power			A.S.S.C.[32]	
Current-value methods				
Replacement costs	Revsine[33]	American Accounting Association[34]	Edwards and Bell[35]	Mathews[36] Gynther[37]
Exit prices	√	√	Chambers[38] Sterling[39]	√
Value to owner	Scapens[40] Sandilands (in a note)[41]	*Exposure Draft No.* 18[42] (in a note)	Scapens (as an alternative)	Sandilands Scapens (as an alternative) *Exposure Draft No.* 18

Note: Value to owner may be entry or exit prices, or present values, depending on circumstances.

CHAPTER 6

Current-Value Accounting II—Methods

In the previous chapter the concepts of current-value accounting were discussed; this chapter contains illustrations of their application. Initially references will be made to the current values of assets, without distinguishing between entry and exit values. This approach will give the illustrations more generality. However, when the Sandilands Committee's proposals are illustrated it will be necessary to define the concept of current value more precisely.

Illustration

The financial statements of I.D.C. Limited, which were used earlier to explain C.P.P. accounting, will be used to demonstrate the application of current-value accounting. To avoid the difficulties associated with referring back, the historical-cost financial statements of I.D.C. Limited are reproduced as Tables 6.1 and 6.2.

Again, it is assumed that I.D.C. Limited was incorporated on 1 January 19*X*4. For present purposes it is also assumed that the financial position at that date, shown in Table 6.1, represents a reasonable approximation of current values. As I.D.C. was incorporated on 1 January 19*X*4, and presumably the plant was acquired on that date, the assumptions imply that if replacement costs are used to measure current value, the cost of the plant was £10,000 on 1 January 19*X*4. However, if exit prices are used, the assumptions imply that the plant could be sold on that date for a net amount of £10,000. However, because of practical difficulties in determining the net realisable value of assets, such as specialised plant, some advocates of exit prices have suggested that the original cost of those assets, restated by a price index for similar assets, may be used as a surrogate for net realisable value. If this approximation is adopted,

Table 6.1 *I.D.C. Limited – financial position at start of year*

Balance-sheet at 1 January 19*X*4			
	£		£
Issued capital	14000	Plant	10000
		Bank	4000
	£14000		£14000

Table 6.2 *I.D.C. Limited – conventional financial statements*

Profit and loss account for year ended 31 December 19*X*4		
	£	£
Sales		18000
Purchases	11800	
Less closing inventory	3000	
Cost of goods sold	8800	
Other expenses	5700	
Depreciation	1000	
		15500
Net profit for the year		£2500

Balance-sheet as at 31 December 19*X*4		
	£	£
Plant at cost	10000	
Less depreciation	1000	
		9000
Current assets		
Inventory	3000	
Debtors	2000	
Bank	3000	
	8000	
Less current liabilities		
Creditors	500	
		7500
Net assets		£16500
Represented by		
Issued share capital	14000	
Retained profit	2500	
	£16500	

the cost of the plant on 1 January 19*X*4 would be used as a surrogate for its current exit value.

The conventional financial statements of I.D.C. Limited for 19*X*4 are shown in Table 6.2. It will be assumed that during 19*X*4 the current value of equivalent new plant increased by 15 per cent and the items purchased for resale (some of which were in inventory at the year end) by 12 per cent. Both increases may be assumed to have occurred evenly throughout the year. As in the earlier illustration of C.P.P. accounting, it will be assumed that the sales, purchases and other expenses were spread evenly over the year and that the year-end inventory, which is evaluated on a F.I.F.O. basis, comprised items purchased evenly through the preceding three months.

A first step in the preparation of current-value financial statements could be to prepare a current-value financial-position statement, as illustrated in Table 6.3. In that statement all assets and liabilities are reported at their current values. Notes on the computation of each entry are included in the table, although such information would not normally be shown in the completed financial statements.

The only two items requiring detailed comment are plant and

Table 6.3 *I.D.C. Limited – current value financial position*

Balance-sheet as at 31 December 19*X*4			
	£	£	*Notes*
Plant at current value	11500		10000 × 115/100
Less depreciation	1150		1/10 × 11500
		10350	
Current assets			
Inventory	3041		3000 × 112/110.5
Debtors	2000		Monetary asset
Cash	3000		Monetary asset
	8041		
Less current liabilities			
Creditors	500		Monetary liability
		7541	
Net assets		£17891	
Represented by			
Issued capital (at par)	14000		Opening balance
Add increase in capital value	3891		Balancing figure (see Table 6.4)
	£17891		

inventory. The other assets and creditors are monetary items and, accordingly, are expressed in terms of their current values at the balance-sheet date. The current value of the plant could be determined by an examination of market prices at the balance-sheet date or it could be computed by restating the original outlay for the increase in an index of prices of similar items since the acquisition date. The latter method should yield a reasonable approximation to current market prices, provided the group of items used to construct the price index is not too wide. Such index adjustments are similar to the C.P.P. adjustments discussed earlier – but in this case a specific price index (i.e. an index relating to the particular asset or to a small group of similar assets) is used. The depreciated value of the asset is then computed by applying the depreciation rate to the revaluation. However, if there is a reasonably developed second-hand market for plant, the market price (entry or exit, as appropriate) of a one-year-old asset may be used to determine its depreciated current value.

The current value of inventory can also be computed by reference to market prices, e.g. manufacturers' published price lists, etc. However, if the appropriate information is not available, it will be necessary to rely on specific price indices. Several indices (if available) could be used to compute current values by restating the original cost of the various categories of inventory. Alternatively a single index adjustment may be applied to the total inventory. The latter method is used in the illustration. It was assumed above that the current value of purchases for resale rose by 12 per cent in 19*X*4 and that the inventory comprised items acquired evenly throughout the last three months of the year. If 1 January 19*X*4 is taken as the base point (i.e. 100) of the specific index for inventory, the index may be assumed to have stood at 109 at the start of the last three months of 19*X*4 and at 112 on 31 December. Accordingly the year-end inventory may be assumed to have been acquired when the index was, on average, 110.5. (Alternative assumptions may be made about price changes from month to month; but the effect on the inventory's current value is unlikely to be material.) The current value of this inventory at 31 December 19*X*4 may now be computed by restating the original cost for the change in the index – namely,

$$£3000 \times 112/110.5 = £3041.$$

The current value of the company's net assets on 31 December 19*X*4 is £17,891. As their current value on 1 January was £14,000,

the net assets have increased in value by £3891 during 19*X*4. This increase in value is the result of a combination of holding and operating activities. The next step is to divide the total increase between those two activities.

The calculation of operating profit (in theory) requires a costing system to identify the current value of inputs at the time they are used in an operating activity. Such a costing system has been used for many years by the Dutch company, N. V. Philips' Gloeilampenfabrieken.[1] However, an approximate measure of operating profit can be computed by a series of adjustments to the conventional financial records. Again, these adjustments are similar to C.P.P. accounting, except that specific price indices are used rather than a purchasing-power index. Table 6.4 illustrates the current-value profit and loss account for I.D.C. Limited. The notes explain how the current-value figures have been derived from the conventional statement shown in Table 6.2.

As indicated earlier the sales, purchases and other expenses may be assumed to have occurred evenly throughout the year. Accordingly they are each expressed in terms of the average prices for the year. As current-value operating profit can be expressed in terms of the 19*X*4 average current values, no adjustment of those items will be necessary. However, the closing inventory and depreciation

Table 6.4 *I.D.C. Limited – current-value profit*

Profit and loss account for year ended 31 December 19*X*4

	£	£	*Notes*
Sales		18000	Average for year
Purchases	11800		Average for year
Less closing inventory	2878		3041 × 106/112
Cost of good sold	8922		
Other expenses	5700		Average for year
Depreciation	1075		1000 × 107.5/100
		15697	
Operating profit		2303	
Holding gains			
Plant	1425		10000 × 15/100 −1075 × 7.5/107.5
Inventory	163		2878 × 6/106
		1588	
		£3891	

charges are not expressed in terms of average-of-the-year prices and they must be adjusted. Although purchases are expressed in terms of average-of-the-year current values, the cost of goods sold are not. The purpose of the adjustment to closing inventory is to restate the cost of goods sold in terms of these average-of-the-year current values. (As will be seen later the Sandilands Committee refers to this adjustment as a 'cost of sales adjustment'.)

The current value of closing inventory, which comprises purchases during the last three months of the year, was computed for balance-sheet purposes to be £3041 on 31 December 19*X*4. This figure is restated in terms of average current values for the profit calculation. The price of inventory items rose 12 per cent during 19*X*4. Accordingly the specific price index may be assumed to be 100 on 1 January and 112 on 31 December, with an average for the year of 106. These indices can be used to restate the closing inventory in terms of the average-of-the-year current values as follows: £3041 × 106/112 = £2878. The difference between this restated amount and the year-end valuation (i.e. £3041 − 2878 = £163) is shown below to be an inventory-holding gain. It may be noted that the effect of this adjustment to the inventory value is to reduce the amount of the closing inventory (below historical cost) and to increase cost of goods sold. As prices are rising it may be expected that the current value of goods sold will exceed their historical costs.

The conventional depreciation charge is based on the prices prevailing at the asset's acquisition date – in this case, 1 January 19*X*4. The current value of the plant rose 15 per cent during 19*X*4 and the average current value was 7½ per cent above the prices at 1 January. Accordingly the depreciation charge measured in terms of the average-of-the-year value is computed by restating the historical-cost figure for this 7½ per cent increase.

The above adjustments yield an operating profit of £2303, measured in terms of the 19*X*4 average current values. This profit figure is based on the assumption that all transactions were spread evenly throughout the year. If a current-value costing system is used, such an assumption would be unnecessary, as the costing system would provide the appropriate current values at the date of each operating activity.

The remaining section of Table 6.4 indicates the holding gains. I.D.C. Limited owned plant in a period when its price increased 15 per cent. This represents an increase of £1500 (i.e. 15 per cent

of £10,000) in the value of equivalent new plant. However, as prices rise depreciation provisions will prove insufficient. The 19*X*4 depreciation charge was based on the average-of-the-year current values and, accordingly, will be insufficient to provide for depreciation based on the year-end current value. Accumulated depreciation at the year end should be £1150, as shown on the balance-sheet in Table 6.3. This is £75 more than the charge in the profit and loss account. This has arisen because prices have changed (in terms of the index, from 107.5 to 115) from the annual depreciation charge, at average-of-the-year values, to the year end

$$(£1075 \times \frac{115 - 107.5}{107.5} = £75).$$

As this additional depreciation is required because of rising prices, it seems reasonable to reflect it in the holding gain and not in the calculation of operating profit. Accordingly the gain from holding plant is £1425 – i.e. £1500 *less* £75.

As indicated above the difference between the average-of-the-year and the year-end current value of closing inventory represents a holding gain. There was no inventory on 1 January; but at the year end the current value of inventory totalled £3041. In terms of physical quantities, it may be assumed that the inventory was built up at an even rate during the year. Thus on average half the closing inventory was held during the year, or equivalently the closing inventory was held for half the year. The inventory holding gain can be measured by the increase in the value of closing inventory from the mid-point to the end of the year. During the latter half of the year the inventory price index increased six points from 106 to 112. As the average value of closing inventory was £2878, the inventory holding gain amounts to £163 (i.e. £2878 × 6/106).

The total operating profit and holding gains (i.e. £3891) will be reported as profit for the year if a money-value concept of capital maintenance is adopted. Capital value was £14,000 on 1 January 19*X*4 and £17,891 on 31 December 19*X*4. The total increase in capital value (£3891) equals the reported profit.

Capital-Maintenance Concepts

The money-value concept of capital maintenance is not the only concept which could be used to report the profit of I.D.C. Limited.

If the operating-capacity concept of capital maintenance is adopted, only the operating profit will be recognised. The total holding gains will be treated as a capital-maintenance adjustment. In this case, the equity section of the balance-sheet would appear as follows:

	£
Issued share capital (at par)	14000
Add capital-maintenance adjustment	1588
	15588
Profit for year	2303
	£17891

The capital-maintenance adjustment represents the additional investment necessary to maintain operating capacity. This illustration is based on the capital-maintenance concept advocated by Mathews.[2] Gynther, however, would include a further adjustment for losses on holdings of monetary items.[3]

Mathews's concept implies that a business with one machine and £1000 cash will maintain its capital if it continues to have an equity investment equivalent to one machine and £1000 cash. Gynther has pointed out that when prices are rising the value of the cash holding to the business will decline, and he claims that this loss of value should be recognised in the profit and loss account. The calculation of this loss is similar to the calculation of the equivalent loss in C.P.P. accounting – see Table 4.4. However, Gynther argues that the index should reflect the movement in prices of the purchases normally made by the business and not necessarily the change in the general price level. But for simplicity it may be assumed that the appropriate price change for I.D.C. Limited equals the change in the general price-level index used in Table 4.4. Accordingly the amount of the loss would be £424, as indicated by that table. This loss would increase the amount of the capital-maintenance adjustment and reduce the reported profit. In his calculation Gynther ignores the effects of changes in the value of long-term monetary liabilities, which he views as part of the capital structure of the business.

Another concept of capital maintenance is that of purchasing-power. If this concept is used in the above illustration the profit

calculation appears in a form suggested by Edwards and Bell.[4] The operating profit is calculated as above; however, only real holding gains are recognised as profit. The effects of price increases due solely to inflation are reported as capital-maintenance adjustments. Edwards and Bell prefer (for practical reasons) financial statements prepared in terms of year-end purchasing power. Table 6.5 illustrates such current-value financial statements for I.D.C. Limited, expressed in terms of the purchasing power of the pound on 31 December 19*X*4. This presentation includes both general and specific price adjustments. The purchasing-power adjustments are based on the general price-level index which was used in Chapter 4 – namely, 1 January – 140, 31 December – 154 and average for the year – 147.

The operating profit in Table 6.5 is computed by restating all revenues and operating expenses in terms of year-end purchasing power. The calculation of current-value operating profit in Table 6.4 was expressed in terms of the 19*X*4 average current values. The price-level adjustment restates these average values (measured in terms of average-of-the-year purchasing power, i.e. when the general index was 147) to year-end purchasing power (when the general index was 154). The real holding gain for each asset is computed by deducting from its total gain (as shown in Table 6.4) the proportion thereof which is accounted for by the change in the purchasing-power index during the holding period. For instance, the 15 per cent increase in the price of the plant during 19*X*4 was partly due to the 10 per cent rise in the general price level. A loss from holding monetary assets is also reported, as there is no specific price change for monetary items at a time when the general price level is increasing. The amount of this loss is identical to the equivalent loss reported by C.P.P. accounting (see Table 4.4).

For the year-end balance-sheet, the capital of I.D.C. Limited on 1 January (i.e. £14,000) is restated in terms of 31 December purchasing power. The difference between the restated value of capital at the start of the year and the capital value at the year end (measured by the current value of assets less liabilities) represents the real (i.e. price-level adjusted) current-value profit for the year. The real profit earned by I.D.C. Limited amounted to £*C*2491 (31.12.*X*4), which was also computed in the profit and loss account.

The above illustration demonstrates that even when the differences between alternative measures of current value are ignored,

several measures of profit are available in a simple situation. These various measures arise because of the use of alternative concepts of capital maintenance.

Table 6.5 *I.D.C. Limited – price-level restated current-value accounts*

Profit and loss account for year ended 31 December 19*X*4

	£*C* (31.12.*X*4)		*Notes*
Sales		18857	18000 × 154/147
Purchases	12362		11800 × 154/147
Less closing inventory	3015		2878 × 154/147
Cost of goods sold	9347		
Other expenses	5971		5700 × 154/147
Depreciation	1126		1075 × 154/147
		16444	
Operating profit		2413	2303 × 154/147
Real holding gains			
Plant	476		10000 (15/100–14/140)
			−1075 (7.5/107.5–7/147)
Inventory	26		2878 (6/106–7/147)
	502		
Less loss from holding monetary assets	424		See Table 4.4
		78	
Profit for the year		2491	

Summarised balance-sheet as at 31 December 19*X*4

	£*C* (31.12.*X*4)		
Net assets		17891	Total as per Table 6.3
Represented by			
Issued share capital (at par)	14000		Opening balance
Add price-level restatement	1400		14000 × 14/140
	15400		
Profit for the year	2491		Profit and loss account
	17891		

The Sandilands Committee's Proposals

The Sandilands Committee recommended a system of 'current cost accounting' (C.C.A.) for companies listed on a recognised stock exchange, nationalised industries and other companies with total assets or turnover in excess of £10 million.[5] Certain aspects of C.C.A. are similar to the above illustrations of current-value accounting. However, the Committee emphasised that their proposals are 'evolutionary rather than revolutionary'.[6] They recommended that the initial implementation of C.C.A. be confined to fixed assets and inventories and that, where inventories are costed on a F.I.F.O. basis, the historical cost of those inventories should be considered a sufficient approximation of their current value for balance-sheet purposes. None the less, an inventory (cost of sales) adjustment is required in the profit and loss account.

Table 6.6 contains financial statements of I.D.C. Limited prepared in accordance with the Sandilands Committee's proposals for the initial implementation of C.C.A. As discussed in the previous chapter, the Committee favoured the concept of 'value to the business' for asset valuations. In practice, this implies revaluations at replacement costs, with the possibility of limiting the revaluation of certain assets to the amount of their net realisable value or net present value as appropriate. (For a discussion of the circumstances in which these limits will apply, see the section on current-value accounting in Chapter 5.) For the illustration, it is assumed that replacement costs are appropriate for the valuation of both inventories and plant; but for simplicity the appropriate values will be referred to as 'current costs'. The Committee recommended that whenever possible independent valuations should be obtained for fixed assets and inventories. However, they recognised that it may not be possible to obtain such valuations for many fixed assets and most inventories. Accordingly they suggest that the valuation of land and buildings should be prepared with the advice of independent valuers and that an approximate value of other fixed assets and inventories could be determined by adjustments for changes in specific price indices. It was recommended that the Government Statistical Service should be responsible for the preparation and publication of the appropriate index numbers.

For the profit and loss account, the Sandilands Committee recommended two adjustments to historical-cost data – a cost-of-sales

adjustment and a revised depreciation charge. The calculation of the cost-of-sales adjustment for I.D.C. Limited is shown in Table 6.7. Sales and purchases during 19*X*4 may be assumed to be measured in

Table 6.6 *I.D.C. Limited – current-cost financial statements (Sandilands Committee initial recommendations)*

Profit and loss account for year ended 31 December 19*X*4

	£	£	*Notes*
Sales		18000	
Purchases	11800		
Less closing inventory	3000		F.I.F.O. costing
Cost of sales (F.I.F.O.)	8800		
Cost-of-sales adjustment	161		Table 6.7
Cost of sales (current)	8961		Approx. av. for year
Other expenses	5700		
Depreciation	1150		1/10 × 11500
		15811	
Current-cost profit		£2189	

Balance-sheet as at 31 December 19*X*4

	£	£	
Plant	11500		10000 × 115/100
Less depreciation	1150		1/10 × 11500
		10350	
Current assets			
Inventory	3000		F.I.F.O. costing
Debtors	2000		
Cash	3000		
	8000		
Less current liabilities			
Creditors	500		
		7500	
Net assets		£17850	
Represented by			
Issued capital	14000		Opening balance
Fixed-asset revaluation reserve	1500		10000 × 15/100
Inventory-adjustment reserve	161		Table 6.7
Profit for year	2189		Profit and loss account
	£17850		

terms of average-of-the-year current costs. However, in the historical-cost profit and loss account, the cost of sales (and inventory) are evaluated on a F.I.F.O. assumption. To revise the cost of sales to a current-cost basis it is necessary to restate the closing inventory in terms of the 19*X*4 average current costs. In a general case, it will be necessary to restate both opening and closing inventories to the average-of-the-year current costs. For purposes of the initial implementation of C.C.A., the Committee suggested that the closing F.I.F.O. inventory be assumed to approximate the year-end current costs.

The index of inventory costs increased from 100 on 1 January to 112 on 31 December. This implies an average-of-the-year index of 106. In Table 6.7 the closing F.I.F.O. inventory (assumed to be

Table 6.7 *I.D.C. Limited – cost of-sales adjustment (Sandilands Committee initial recommendations)*

		£	£
Closing inventory	$3000 \times \frac{106}{112}$		2839
Opening inventory	$0 \times \frac{106}{100}$		0
Movement in Inventories			
Unadjusted	£3000–0	3000	
Adjusted	£2839–0	2839	
Cost-of-sales adjustment		£161	

measured in current costs of the year end, i.e. when the index stood at 112) is restated to the average-of-the-year current cost (i.e. to an index level of 106). An opening inventory (which would be assumed measured in current cost at the beginning of the year, when the index stood at 100) would also be restated to the average-of-the-year current costs. The F.I.F.O. cost-of-sales calculation reflects a movement in inventories of £3000. However, if cost of sales is evaluated in terms of the average-of-the-year current cost, the inventory movement is only £2839 – a difference of £161. This cost-of-sales adjustment is now added to the F.I.F.O. cost of sales to give an approximate measure of the cost of sales at average 19*X*4 current costs, £8961. This amount differs from the cost of goods sold in the current-value profit and loss account (Table 6.4) because of the assumption here

that the closing F.I.F.O. inventory is a reasonable approximation of the year-end inventory at 31 December current costs.

The other profit and loss account adjustment is a revision of the depreciation charge. The Sandilands Committee suggested that it would be desirable to express the depreciation charge in terms of the average-of-the-year current costs, as the other items in the C.C.A. profit and loss account (after the cost-of-sales adjustment) would be expressed in those terms. However, for the balance-sheet it is necessary to compute depreciation charges on the year-end current costs (see below). Accordingly if the depreciation charge in the profit and loss account is calculated on the average-of-the-year current costs, the conventional double-entry connection between depreciation and asset valuation would be broken. For this reason, the Committee recommended that depreciation charges in the profit and loss account should be based on year-end current costs. In the profit and loss account of I.D.C. Limited, the 10 per cent depreciation rate is applied to the current cost of plant as shown in the 31 December 19*X*4 balance-sheet.

Fixed assets and inventories are valued at year-end current costs for the balance-sheet. In addition, the Committee recommended that marketable securities should be reported at their market value. The year-end current cost of plant can be computed by applying a specific index adjustment to the acquisition cost, or the current cost at some earlier balance-sheet date. Depreciation, calculated on the year-end current cost, is then deducted from the revaluation to give a measure of the written-down value at the year end. No balance-sheet adjustment is required for closing inventory evaluated on an F.I.F.O. basis (at least for the initial implementation of C.C.A.).

A revaluation surplus (i.e. a holding gain) is not reflected in the profit and loss account, but in the equity section of the balance-sheet. In the illustration, the £1500 increase in the current cost of plant during 19*X*4 is disclosed as a fixed-asset revaluation reserve and the cost-of-sales adjustment reported as an inventory-adjustment reserve. However, the Committee recommended that a summary of total gains be published as a note to the C.C.A. financial statements. Such a summary for I.D.C. Limited is shown in Table 6.8.

The Sandilands Committee envisaged that after C.C.A. has been introduced and its general nature widely understood, certain refinements would be made. One such refinement is related to the valuation of closing inventory, in particular the assumption that F.I.F.O.

Table 6.8 *I.D.C. Limited – summary of total gains for* 19*X*4

	£
Current-cost profit	2189
Movement on reserves	
Inventory-adjustment reserve	161
Fixed-asset revaluation reserve	1500
	£3850

costing of inventories provides a reasonable approximation of year-end current costs would be abandoned, and the closing inventory revalued at the current costs prevailing at the year end. The appropriate current costs may be determined from such evidence as suppliers' current price lists, current production costs, etc., or by the application of specific index adjustments to original costs. This refinement is included in *Exposure Draft No. 18* and will be illustrated later in this chapter.

The Committee claimed that their proposals, as illustrated above, 'constitute a comprehensive system of accounting for inflation',[7] and that no further adjustments are required for changes in the general level of prices. A C.C.A. balance-sheet is prepared in terms of current costs at the year end, while the profit and loss account is prepared in terms of the average-of-the-year current costs (with the exception of the depreciation charge, which is measured in year-end current costs). The Committee rejected inflation (C.P.P.) adjustments for a number of reasons, but principally because the unit of measurement is likely to prove confusing and be misunderstood by many users of financial statements. However, it was pointed out that current-cost profits and asset valuations are not comparable over time because each year's statements are based on current costs in *that* year. None the less, they rejected price-level restatements as a means of comparing financial results for a number of years and suggested that any such financial summaries be expressed in the form of ratios.

A Compromise

An initial reaction of the U.K. accountancy profession to the Sandilands Report was published in October 1975 in the form of a memorandum issued by the Consultative Committee of Accountancy

Bodies (C.C.A.B.). The memorandum expressed support for the concept of C.C.A., but criticised the rejection of general price-level adjustments. The C.C.A.B. proposed that 'work should start forthwith on the development of a new accounting standard which would be based on the [Sandilands] Report's proposals for a system of current cost accounting but which would in addition require information on the basis of current purchasing power'.[8] (This work was subsequently undertaken by the Morpeth Committee and the proposed standard has been published in the form of *Exposure Draft No. 18.*)

The C.C.A.B. was particularly concerned about the omission of general price-level adjustments from C.C.A. for the following reasons:

(i) the proposed C.C.A. system does not deal with the effects of inflation on the value of monetary items;

(ii) the effects of inflation on the value of the proprietor's interest in the business is not disclosed; and

(iii) no attempt is made to dichotomise the revaluation surplus into a real holding gain and an inflationary element.

Reasons (ii) and (iii) above indicate that the C.C.A.B. favour a purchasing-power concept of capital maintenance. This concept accounts for the proprietor's interest in the business and provides the basis for a division of holding gains into real and inflationary elements. The Sandilands Committee, however, appears to have favoured an operating-capacity concept. This can be seen in the similarity between current operating profit (discussed earlier) and their measure of current-cost profit.

Price-level adjustments can easily be applied to a C.C.A. system. The only conceptual problem is the treatment of real holding gains, which could be reported in the equity section of the balance-sheet or in the profit and loss account. A treatment similar to the Sandilands Committee's proposal for revaluation surpluses in C.C.A. would probably prove least controversial. Real holding gains could be reported in the equity section of the balance-sheet and a note to the financial statements could indicate the total gains (operating profit and real holding gains). The financial statements of I.D.C. Limited prepared in this way are set out in Table 6.9. The C.C.A. aspects of the statements are based on the Sandilands Committee's recommendations for the initial implementation of its proposals.

Table 6.9 *I.D.C. Limited – price-level adjusted current-cost financial statements*

Profit and loss account for year ended 31 December 19*X*4

	£*C* (31.12.19*X*4)		*Notes*
Sales		18857	18000 × 154/147
Purchases	12362		11800 × 154/147
Less closing inventory	3000		Approx. year-end value
	9362		
Cost-of-sales adjustment	26		Table 6.10
	9388		
Other expenses	5971		5700 × 154/147
Depreciation	1150		At year-end value
		16509	
		2348	
Less loss on holding monetary items		424	See Table 4.4
Price-level adjusted current-cost profit		1924	

Balance-sheet as at 31 December 19*X*4

	£*C* (31.12.19*X*4)		
Plant	11500		10000 × 115/100
Less depreciation	1150		1/10 × 11500
		10350	
Current assets			
Inventory	3000		Approx. current cost
Debtors	2000		Monetary asset
Cash	3000		Monetary asset
	8000		
Less current liabilities			
Creditors	500		Monetary liability
		7500	
Net assets		17850	
Represented by:			
Issued capital	14000		Opening balance
Add price-level restatement	1400		14000 × 154/140
	15400		
Fixed-asset revaluation reserve	500		10000 (15/100—14/140)
Inventory-adjustment reserve	26		Table 6.10
Profit for year	1924		Profit and loss account
	17850		

As explained in Chapter 3, when financial statements are prepared in terms of general purchasing power, it is important to carefully define the unit of measure which is used. The I.D.C. Limited financial statements are prepared in terms of the current purchasing power of the pound on 31 December 19*X*4, i.e. £*C* (31.12.*X*4). During 19*X*4 the general price-level index increased from 140 on 1 January to 154 on 31 December, with an average for the year of 147. The entries in the profit and loss account measured in average-of-the-year current costs are restated in terms of year-end purchasing power by multiplying by the factor 154/147. The cost-of-sales adjustment is calculated by revaluing the closing inventory in terms of average-of-the-year current costs and then restating those current costs in year-end purchasing power. This calculation is illustrated in Table 6.10. The depreciation charge does not require adjustment as it is measured in year-end current costs which are expressed in 31 December purchasing power.

Table 6.10 *I.D.C. Limited – cost of-sales adjustment (price-level adjusted)*

		£	£*C* (31.12.*X*4)
Closing inventory			
19*X*4 average current cost	$3000 \times \frac{106}{112} = 2839$		
Price-level adjustment	$2839 \times \frac{154}{147}$		= 2974
Opening inventory			= 0
Movement in inventories		£*C* (31.12.*X*4)	
Unadjusted £3000−0		3000	
Adjusted £*C*2974−0		2974	
		26	

The additional entry, which appears in the price-level adjusted profit and loss account, is the 'loss on holding monetary items'. This entry is identical to the loss which was computed when price-level adjustments were applied to the historical-cost financial statements in Chapter 4 – see Tables 4.3 and 4.4.

No price-level adjustments are required in the assets and liabilities section of a C.C.A. balance-sheet, as all assets and liabilities are (or

are assumed to be) expressed in terms of year-end current costs. However, the equity section of the balance-sheet is affected by the restatement process. A price-level adjustment is applied to the capital value at the start of the year. This adjustment represents the increase in capital value which is required to maintain the purchasing power of the starting capital. When financial statements are prepared in terms of general purchasing power, asset revaluations will be measured by the excess of the current value over the price-level adjusted historical cost. Accordingly a revaluation surplus can be computed by deducting the proportion of the increase necessary to keep pace with inflation from the total increase in the asset's value. The current cost of the plant owned by I.D.C. Limited increased 15 per cent during 19*X*4, while inflation was 10 per cent (an increase of fourteen points from the beginning index of 140). Thus the real holding gain was 5 per cent of £10,000, or more fully £10,000 (15/100 − 14/140) = £500 at 31 December 19*X*4. The inventory adjustment of £*C*26 (31.12.*X*4) is also reported in the equity section of the balance-sheet.

Total gains for the year could be disclosed as a note to the financial statements – Table 6.11. Alternatively the total gains could be computed in the profit and loss account by disclosing the movement on

Table 6.11 *I.D.C. Limited – summary of price-level adjusted total gains for* 19*X*4

	£*C* (31.12.*X*4)
Current-cost profit	1924
Movement on reserves	
Inventory-adjustment reserve	26
Fixed-asset revaluation reserve	500
	2450

valuation reserves as holding gains rather than as capital-maintenance adjustments. The total profit for 19*X*4 would then be reported as £*C*2450 (31.12.*X*4) and the equity section of the balance-sheet would be revised as shown in Table 6.12. The C.C.A.B. conceded that the time may not be 'ripe for a full application of the concept of . . . current purchasing power'.[9] If so, they would seem to favour the application of C.C.A. as recommended by the Sandilands Committee, but with the addition of a note to the financial

Table 6.12

	£C (31.12.X4)
Issued capital	14000
Add Price-level restatement	1400
	15400
Profit for year	2450
	17850

statements comparing the change in capital value of the proprietor's interest, as measured by the C.C.A. financial statements, and the amount required to maintain the purchasing power of the start-of-the-period capital value. The effect of such a note would be to disclose the real (or purchasing-power) gain accruing to the business during the reporting period. The Morpeth Committee accepted this suggestion and included in *Exposure Draft No. 18* the requirement that a note to the current-cost financial statements should disclose the effect on proprietors' interests of changes in the value of money.[10]

Exposure Draft No. 18

Exposure Draft No. 18 is a proposed statement of standard accounting practice on current-cost accounting which the Accounting Standards Committee (A.S.C.) plans to implement in accounting periods commencing on or after 1 July 1978. Initially the standard will apply to companies listed on the Stock Exchange and to other companies, nationalised industries and public trading organisations with either turnover or total assets in excess of £10 million, with the exception of companies with more than 50 per cent of their assets outside the United Kingdom. Other companies, unincorporated businesses and other institutions which present financial statements intending to show a true and fair view will be brought within the scope of the proposed standard in following years.[11]

The content of the proposed standard is broadly in line with the recommendations of the Sandilands Committee. However, there are some differences. As mentioned above, the draft outlines the form of a statement, to be included in the notes to the published current-cost accounts, showing the change in shareholders' net equity interest after allowing for the change in the value of money. This statement

is to be reported in place of the statement of total (money) gains which was favoured by the Sandilands Committee. In addition the Morpeth Committee recommends that directors should consider making an appropriation to a revaluation reserve to maintain the substance of the business, e.g. where there has been a need to increase net monetary assets because of the effects of inflation.[12] These proposals go some way towards meeting the requirements of the C.C.A.B.

The Morpeth Committee also changed the method of reporting depreciation. The current-cost profit and loss account described in the draft includes depreciation charges based on the average value of fixed assets during the year. The Sandilands Committee considered this approach desirable but rejected it in favour of depreciation charges based on year-end current costs because of the practical difficulty of reconciling the annual depreciation charge in the profit and loss account and the accumulated depreciation on the balance-sheet. The Morpeth Committee did not consider this practical difficulty too serious and recommended that differences between the annual depreciation charges and accumulated depreciation be transferred to the revaluation reserve as backlog depreciation.[13]

The draft sets out procedures for applying the value to the business concept which was recommended by the Sandilands Committee. Inventories are to be valued at the lower of replacement cost and net realisable value – present value is not relevant for inventories as such assets are not held for use. The use of actual market prices of inventory items or internally generated index numbers is preferred. However, if such information is not available the current cost of inventories may be determined by reference to appropriate authorised index numbers.[14] The draft does not refer to the Sandilands Committee's suggestion that inventory valued at F.I.F.O. historical cost may be regarded as a reasonable approximation to year-end current cost. Accordingly it appears that the closing inventory must be valued at year-end current cost.

The proposed standard will require plant and machinery to be valued at net current replacement cost except where this is greater than both economic (present) value and net realisable value, in which case the asset should be valued at the higher of economic value and net realisable value. Land and buildings are to be valued at their open market value in existing use. Observed market prices or professional valuations are to be used for the valuation of fixed

assets. However, authorised index numbers may be used when other data are not available.

It is the intention of the A.S.C. that current-cost financial statements will ultimately replace historical-cost statements, but they recommend a period of parallel running (of at least two years).

Table 6.13 *I.D.C. Limited – Exposure Draft financial statements*

Profit and loss account and appropriation account for year ended 31 December 19*X*4

		£
Turnover		18000
Current-cost profit:		2303
After charging: cost-of-sales adjustment	122	
Depreciation	1075	
Surplus arising from revaluation of assets		
Revaluation of fixed assets	1425	
Revaluation of inventories	163	
	1588	
Less appropriation to revaluation reserve	2088	(500)
Available for distribution and general reserve		£1803

Balance-sheet as at 31 December 19*X*4

		£
Assets employed		
Fixed Assets		
Plant	11500	
Less depreciation	1150	10350
Net current assets		
Inventory	3041	
Debtors	2000	
Cash	3000	
	8041	
Creditors	500	7541
		£17891
Financed by		
Issued share capital		14000
Revaluation reserve		2088
General reserve		1803
		£17891

However, it is probable that the E.E.C.'s *Fourth Directive* will require historic-cost figures to be published for the foreseeable future.* The A.S.C. plans to review the position of the historic-cost figures in the light of experience gained from the initial application of C.C.A. and to make any necessary revisions to the standard. In the meantime historical-cost financial statements must be published.

The financial statements of I.D.C. Limited prepared in accordance with the draft are shown in Table 6.13. The note describing the effect on shareholders' equity of changes in the value of money is set out in Table 6.14. It may be observed that as the Sandilands Committee's approximations for inventory valuation and fixed-asset depreciation were rejected by the Morpeth Committee, the current-cost financial statements in Table 6.13 are similar to the general form of current-value statements discussed earlier in this chapter. The draft balance-sheet may be compared with Table 6.3 and the draft profit and loss account with Table 6.4. (Table 6.13 does not show all the details of the current-cost profit calculation – only those figures which must be published.) The note to the draft financial statements, Table 6.14, may be compared with the price-level restated current-value profit and loss account illustrated earlier, in Table 6.5.

The current-cost profit in Table 6.13 is made up as follows:

Sales		£18000
Less cost of sales – F.I.F.O.	8800	
Cost-of-sales adjustment	122	
Depreciation	1075	
Other expenses	5700	15697
		£2303

The cost-of-sales adjustment is computed using the averaging method suggested by the Sandilands Committee. The draft recommends that where possible the actual current cost of goods sold should be identified at the point of sale. However, where such data are not available the averaging method may be used. In the earlier illustration of the

* See draft Fourth Council Directive of the European Communities on the annual accounts of limited-liability companies, prepared in February 1974. Appropriate extracts are given in Appendix 4 to the Report of the Inflation Accounting Committee.

Table 6.14 *I.D.C. Limited – Exposure Draft note to financial statements*

Statement of change in shareholders' net equity interest after allowing for change in the value of money	£
Net equity interest at beginning of year	14000
Amount required to compensate for the change in the value of money during the year	1400
	15400
Net equity interest at end of year	17891
Gain after allowing for the change in the value of money	£2491
Analysis of gain/loss on monetary assets and liabilities after allowing for the change in the value of money	£
Long-term liabilities	—
Bank overdrafts	—
Non-equity share capital	—
Other	(424)
	£(424)

Sandilands Committee's proposals it was assumed that F.I.F.O. historic cost provides a reasonable approximation for current costs of closing inventory. The draft does not appear to permit such an approximation. Accordingly the cost-of-sales adjustment computed earlier (£161 in Table 6.7) must be amended. The revised cost-of-sales adjustment is computed in Table 6.15 using the steps described in appendix 3 of *Exposure Draft No. 18*. The closing inventory of I.D.C. Limited was assumed to have been purchased during the preceding three months, i.e. when the inventory price index was, on average, 110.5. The closing F.I.F.O. inventory, £3000, can be revalued at the year-end current costs by an adjustment for the change in the index from the average of 110.5, when the inventory was acquired, to 112 at the year end, i.e. £3000 × 112/110.5 = £3041. The average-of-the-year current cost is computed by restating this closing inventory at the average index of 106. The cost-of-sales adjustment is then calculated by reworking the cost-of-sales calculation with the average current cost of inventories and comparing the result with historical (F.I.F.O.) cost of sales.

The annual depreciation charge in the draft profit and loss account is measured in average-of-the-year current costs of fixed assets. The price index for plant increased from 100 on 1 January to 115 on 31 December and was assumed to have been, on average,

Table 6.15 *I.D.C. Limited – Exposure Draft cost-of-sales adjustment*

(i) Inventories valued at average current cost			
Closing inventory		$3041 \times \frac{106}{112} =$	£2878
Opening inventory			£0
(ii) Cost of sales at average current cost			£
Opening inventory			0
Purchases			11800
			11800
Less closing inventory			2878
Average current cost of sales			£8922
(iii) Cost-of-sales adjustment			
Current cost-of-sales	£8922		
Less F.I.F.O. cost of sales	8800		
Cost-of-sales adjustment	£122		

107.5 during the year. Accordingly the annual depreciation charge is 10 per cent of £10,000 × 107.5/100 = £1075.

The depreciation of plant reported in the draft balance-sheet is measured in year-end current costs – i.e.

$$10 \text{ per cent of } £10{,}000 \times 115/100 = £1150.$$

The difference between this amount and the annual depreciation charge is the backlog depreciation, which should be charged against the revaluation reserve (by a reduction of the fixed-asset revaluation surplus). The current cost of plant increased £1500 during 19*X*4 – i.e. 15 per cent on the initial cost of £10,000. The surplus arising from the revaluation of fixed assets is recorded in the draft appropriation account at £1425 – the total revaluation surplus of £1500 less the £75 backlog depreciation.

As calculated above, the year-end current cost of the closing inventory was £3041. The revaluation surplus of £41 is added to the cost-of-sales adjustment, £122, to yield the surplus arising from the revaluation of inventories, £163. The aggregate of current-cost profit, £2303, and revaluation surplus, £1588, represents the total gains (or surplus) accruing to the business during the year. (Compare with Table 6.4, where the total of £3891 was reported.) However, this amount cannot be deemed available for distribution if the

business is to continue operations at the existing level of activity. The proposed standard requires a transfer to the revaluation reserve. This transfer will normally include the total of the revaluation surplus on non-monetary assets and any other amounts the directors consider appropriate. As discussed earlier, I.D.C. Limited lost general purchasing power amounting to £424 from holdings of net monetary assets (see Table 4.4). That amount was computed by reference to movements in the general price-level index, but such an index may not be appropriate for the business. None the less, as prices are generally rising it is probable that I.D.C. Limited will need to increase its monetary working capital. For purposes of the illustration, it is assumed that the directors consider £500 to be an appropriate amount to set aside to the revaluation reserve to offset the erosion of monetary working capital.[15] In addition they transfer the total revaluation surplus on non-monetary assets. It should be emphasised that such transfers will not be mandatory and directors will have the discretion to set aside to the revaluation reserve any amount they consider appropriate. However, directors will be required to give reasons for the amounts they transfer and will be expected to transfer at least the amount of the revaluation surplus.

The draft balance-sheet is similar to the current-value balance-sheets illustrated earlier in this chapter. Both fixed assets and inventories are valued at their appropriate year-end current costs. The equity section of the balance-sheet distinguishes the revaluation reserve from other reserves.

The note to the draft financial statements which analyses the change in the shareholders' net equity interest after allowing for the change in the value of money (Table 6.14) discloses the real (or general price-level adjusted) gain for the year. This real gain is computed by adjusting the opening net equity for the fall in the value of money and then making a comparison with the net equity reported at the year end. The real gain of £2491 shown in Table 6.14 is identical to the general price-level adjusted profit computed earlier in the price-level restated current-value profit and loss account (Table 6.5). The note will also contain an analysis of the purchasing-power gain or loss from holding monetary assets and liabilities during the year. This loss can be computed by the procedure laid out in Chapter 4. Table 4.4 illustrated the calculation of the loss incurred by I.D.C. Limited. *Exposure Draft No. 18* requires that the total loss or gain from holding monetary items be analysed

to disclose separately the figures for: (i) long-term liabilities; (ii) bank overdrafts; and (iii) non-equity share capital.[16]

The above illustration of the draft financial statements indicates that they disclose both the monetary and price-level restated current-value profit figures. The question that will undoubtedly be raised is: 'will such information confuse readers?' Different profit figures are inevitable, if alternative views are taken about the meaning of capital maintenance. The proposed presentation does at least allow readers to focus on that aspect of the statements which conforms to their views. Some confusion amongst readers is probable with any change in the basic nature of financial reporting, and the responsibility lies with the accounting profession to prepare readers for the new statements.

One aspect of the draft proposals which is likely to give rise to at least some confusion is the gain or loss from holding monetary assets and liabilities. The proposed analysis in the statement of change in shareholders' net equity will probably add to this confusion. It is not clear from the statement just how the monetary gain or loss is related to other items in the financial statements. An analysis of the 'gain after allowing for the change in the value of money' computed in Table 6.14 would show that the monetary gain or loss is a component of that gain. Table 6.5, the price-level restated profit and loss account, disclosed the following:

	£*C* (31.12.19*X*4)
Current operating profit (in year-end pounds) £2303 × 154/147	2413
Real holding gains on non-monetary assets	502
Loss on holdings of net monetary assets	424)
	2491

Such a statement would clearly demonstrate that the monetary gain or loss is included in the gain to equity after allowing for the change in the value of money and could remove some element of the confusion.

Implications

The comments concerning the implications of C.P.P. accounting made in Chapter 4 are also generally applicable in the context of

current-cost or current-value accounting. For instance, it cannot be concluded that a change of the tax base to a current value measure of profit will necessarily lower tax assessments for individual businesses or for the business sector as a whole. If total holding gains (real and inflationary) are included in taxable profits, current-value profit can exceed historical-cost profit in a period of inflation. Furthermore, the Chancellor's distribution of tax burdens among sectors of the economy may not be based on the nominal tax rates paid in each sector, but on the aggregate amount of revenue he considers it equitable to raise from each.

The Sandilands Committee reached no conclusion about the usefulness of C.C.A. as a tax base. They recommended a comprehensive review of the tax system as a whole, and, pending such a review, proposed some short-term modifications to the existing system. However, the Committee did recommend that C.C.A. should become the accounting basis on which the government's price-control policy is operated.

It is often suggested that current-value accounting is useful for dividend decisions; but, as recognised by the Sandilands Committee, dividend policy must have regard to the amount of cash actually available for distribution and the future cash requirements. However, a distinction between holding and operating activities should enable directors to focus on the operating profit, which represents the surplus earned from operations, after the current cost of resources has been met. The draft profit and loss account indicates the net surplus available for distribution after the operating capacity of the business has been maintained intact. This may prevent directors from unintentionally distributing the operating capital of the business.

However, the benefits to be derived from current-value or current-cost accounting are not restricted to the areas of taxable assessments and dividend policy. The various methods of accounting in terms of current values or current costs illustrated in this chapter all have their advocates who claim that their preference is superior to the alternatives. The benefits of alternative accounting methods should be discussed within the context of an over-all framework for financial reporting. The nature of financial reporting and its objectives are discussed in the next chapter.

CHAPTER 7

Financial Reporting

The inflation that has occurred in many Western countries in recent years has been the primary motivating force which has encouraged accountants to consider the effects of changing prices on accounting measurement. However, inflation does not create fundamental accounting problems. As discussed in Chapter 3, inflation affects the stability of the unit of measurement normally used by accountants, but this instability can be removed by adjustments for change in the purchasing power of money. None the less, the inflationary conditions have led to discussions of some fundamental accounting issues; in particular, the use of historical cost has been questioned. Some accountants have suggested that current values should replace historical costs in reports of financial position and performance.

Accounting in current values will overcome many problems which arise from monetary instability, but current values may also change (as a result of relative price movements) when there is no inflation. Current-value accounting and C.P.P. accounting should not be regarded as mutually exclusive accounting techniques. As illustrated in Chapter 6 (Table 6.5) purchasing-power adjustments may be incorporated into current-value financial statements. The essential difference between C.P.P. accounting, favoured by a number of professional accountancy bodies in recent years, and current-value accounting reflected the professional bodies' desire not to abandon the principle of historical cost. Any discussion of the relative advantages of these two approaches should include consideration of the validity of the historical-cost concept as a means of generating useful financial information.

In this chapter a framework for discussing alternative methods of financial reporting will be outlined. For this purpose financial reporting may be thought of as comprising all activities involved in

preparing a financial report of the outcome of a business' activities and of its state of affairs.

Historical Cost versus Current Value

Historically, financial statements have been regarded merely as reports of past transactions. In its early form accounting was used by individuals to keep track of their property. Accounting records were particularly important when an agent (steward) was employed to manage property on behalf of the owner. Some means were required to control the property entrusted to the steward, and accounting reports were frequently used. As businesses grew large and owners became divorced from the day-to-day running of their affairs, accounting became very important. This was particularly evident in the nineteenth century with the expansion of joint-stock companies. Such a 'stewardship' role implies that financial reporting is essentially backward-looking and concerned only with events that have occurred in the past. This view is accepted by many contemporary accountants and appears to be embodied in U.K. and U.S. company legislation. For instance, it is the legal interpretation reported by the Institute of Chartered Accountants in England and Wales:

> In Counsel's view the object of annual accounts is to assist shareholders in exercising their control of the company by enabling them to judge how its affairs have been conducted . . . the purpose for which the annual accounts are prepared is not to enable individual shareholders to take investment decisions.[1]

This view also appears to underlie the method of C.P.P. accounting favoured by professional accounting bodies. Although the *Statement of Standard Accounting Practice No. 7* did not contain explicit reference to the role of C.P.P. financial statements, it was stated that the purpose of the Standard was to establish a method 'for demonstrating the effect of changes in the purchasing power of money on accounts prepared on the basis of existing conventions'.[2] (A similar statement was also contained in the Accounting Principles Board's *Statement No. 3*, issued in the United States.[3]) Such statements suggest that the C.P.P. financial statements are expected to fit directly into the traditional role of financial reporting. This interpretation is supported by statements which appeared in an earlier publication, *Accounting for Stewardship in a Period of Inflation*,[4] which proposed the

introduction of C.P.P. accounting in the United Kingdom. Although no direct references were made in that publication to the purposes of annual financial statements, references were made to stewardship accounts, which suggests the assumption that the main object of financial reporting is to report on the directors' stewardship of the shareholders' funds.

In recent years there has been no generally agreed definition of the term 'stewardship', but it is widely regarded as encompassing both honesty (i.e. absence of fraud) and efficiency. However, a range of interpretations may be associated with the stewardship role of financial reporting. At one extreme financial statements may be viewed as a deterrent. Directors, managers, and so on, may be encouraged to act honestly and with reasonable efficiency because they will be aware that their actions are reflected in the published statements. At the other extreme it can be argued that a stewardship role is consistent with the purpose of assisting individual shareholders to take investment decisions. Information concerning managements' honesty and efficiency in a particular period should assist shareholders to formulate expectations about future honesty and efficiency and these expectations will influence investment decision-making.

Many advocates of current-value accounting focus on the use of accounting information for decision-making. It can be argued that information which is entirely backward-looking has no value. Information only has value if it has the potential to influence actions.[5] Such an argument can be applied to stewardship information, as follows. Shareholders can use stewardship information to assess whether legal action against directors is appropriate, whether directors should be dismissed or praised, or whether to buy or sell shareholdings. Thus, although accounting information may be looking back at past transactions and events, its emphasis can be forward-looking, and it should be designed to assist the user to take appropriate action.

It can be argued that financial information based on current values has greater relevance for decision-making than historical-cost data. The historical-cost profit and loss account and balance-sheet (even when adjusted to current purchasing power) ignore current values and value changes. Certain writers have argued that financial statements should report the current state of the business, measured in contemporary terms, particularly if the information is to be used for making decisions about the business. MacNeal claimed that the

failure of conventional accounting to reflect current values is to ignore the truth in accounting.[6]

Historical-cost accounting recognises value changes only when they are realised, and ignores unrealised profits. Accordingly in any period the unrealised profits accruing during that period are ignored, while the unrealised profits of previous periods realised in the current period are included in the reported profit. It has been argued that such a profit measure is a confusing portrayal of the activities of the financial period and is neither particularly useful nor beneficial.[7] A current-value profit measure will overcome this problem and also distinguish between holding and operating activities. As discussed in Chapter 5, the dichotomisation of a profit measure into holding and operating elements may provide relevant information for decision-makers.

Information for decision-makers should assist the selection of a preferred course of action by either indicating the available alternatives or the consequences of some particular action. The advocates of current-value accounting generally agree that financial statements which disclose the current position of a business in terms of contemporary values provide more useful information for decision-makers than historical-cost statements. However, certain criticisms can be raised against current-value financial statements.

One criticism of current-value financial statements reflects the traditional view of accounting, i.e. the accountant's job is to record transactions in factual terms and not to act as a valuer. It is suggested that the accountant must make subjective estimates when determining current values. However, current-value financial statements can be prepared by adjusting conventional historical-cost data for changes in specific price indices, or for changes in known market prices. Accordingly the factual historical records can be retained and current values determined objectively by reference to published index numbers or established market prices. Other criticisms of current-value accounting concern the particular measures of current value to be used. For instance, the assumption implied by the use of replacement costs, i.e. that the assets will be replaced, is questioned. Also questioned is the assumption that assets are to be realised, implied by the use of exit prices. The assumptions of replacement and/or realisation do not seem unreasonable in the context of most business activities. However, the important question to raise concerns the usefulness of the information to the users of the financial

statements. As indicated above, a *prima facie* case can be made for current-value data being more useful to decision-makers than historical-cost data. However, it is not so easy to distinguish the usefulness of the various current-value techniques.

As discussed in Chapter 5, current-value accounting can be regarded as a family of techniques. There are various measures of current value and a number of concepts of capital maintenance. Table 5.4 indicated some of the writers who have advocated methods of current-value accounting. A number of alternative proposals have arisen, mainly because of differences of opinion about the decision-makers to whom the information should be directed and also about their requirements for information. For instance, supporters of exit prices argue that decision-makers require information about the short-run utilisation of resources available to the business. The supporters of replacement costs, however, claim that decision-makers need information about the long-run effects of business activities.

Another difference between current-value techniques arises from alternative concepts of capital maintenance. The distinction between the operating-capacity concept of capital maintenance and the shareholder purchasing-power concept stems from alternative views about the nature of business enterprises. Gynther called the two extreme viewpoints the 'entity view' and the 'proprietory view' respectively.[8] Holders of the entity view perceive a business enterprise to be separate and distinct from the individuals who contributed its equity capital. They regard the assets and liabilities as belonging to the business itself (and not to the owners). This implies that a business can be considered better off (i.e. to have earned a profit) only when it has increased its capacity to carry on its activities, and this suggests the operating-capacity concept of capital maintenance. At the other extreme holders of the proprietory view perceive a business enterprise as an extension of its owners and the business assets as the property of those owners. This view leads to a concept of profit which is measured by the surplus in excess of the capital contributed by the owners, and, accordingly, to a shareholder purchasing-power concept of capital maintenance.

Each of the alternative techniques referenced in Table 5.4 has its advocates who argue that it is the most useful. However, to make a selection from the available alternatives it will be necessary to develop a framework for financial reporting which contains a clear statement of the purposes for the preparation of financial statements.

These purposes will be referred to as the objectives of financial reporting in following sections of this chapter.

A Framework for Accounting

The above comments suggest that any evaluation of financial-reporting techniques should start with a consideration of the objectives of financial reporting; but at the present time there is no general agreement about these objectives.[9] However, the discussion papers issued by the A.S.S.C. in the United Kingdom[10] and the Trueblood Committee in the United States[11] may help to achieve some measure of general agreement. (The content of these papers will be outlined later.) Accordingly the framework for accounting described below must be considered a long-term project – which should commence with research to establish the objectives of financial reporting. Such a project may answer many questions of financial reporting, including the problem of reporting in a period of inflation.

The ultimate aim of the project should be the selection of appropriate accounting techniques which will fulfil the objectives of financial reporting. However, until the objectives have been specified there is no base upon which to build a framework for accounting and no criteria for the selection of preferred accounting methods. This specification of objectives should deal with fundamental issues and not merely describe existing practice. It is not suggested that this will be an easy step, but until it is undertaken, and a general agreement reached, little real progress can be made.

Professional accounting bodies are in a good position to promote a general agreement about the objectives of financial reporting by issuing a statement of policy. Such a statement would at least ensure general knowledge, if not a complete general agreement. These objectives should specify the users to whom financial statements are to be directed, the uses that are expected to be made of the statements and the nature of the information required by the users. The statements should identify the users as precisely as possible and should not encompass too many different groups. This will avoid the risk of inconsistencies in information needs. Alternatively, a preference ranking of the various potential users could be given to provide a means of resolving possible conflicts of information needs. A statement of objectives in this form may not receive unanimous approval,

but at least it will provide an awareness of the objectives underlying the preparation of the financial reports which are actually published. Discussion of objectives should then continue and the objectives statement revised from time to time as information needs of the business community change.

The nature of the proposed accounting framework can be expressed by a series of steps:

(i) Establish the objectives of financial reporting – as discussed above, these objectives should indicate the users and uses of the financial reports.

(ii) Identify the information needs of the selected groups – this step will provide criteria for the evaluation of alternative accounting techniques.

(iii) Specify the accounting techniques which are available to provide the required information (or at least those methods thought to be worthy of study). If inflation accounting is to be studied, there should be included the accounting systems based on historical cost, C.P.P. and the various concepts of current value.

(iv) Formulate a model to link the available accounting techniques and the information needs of the selected groups. This link may not be easy to establish, particularly if the user's information needs relate to the outcome of some future events (frequently required by decision-makers). An individual taking a decision will generally attempt to evaluate the future outcomes of the available courses of action, before selecting the action which best satisfies his personal desires.

(v) Evaluate the potential of each of the available accounting techniques to generate the information required by the selected user groups.

(vi) Finally, select the accounting technique which most efficiently provides the required information. This step should involve a comparison of the costs and benefits of providing the information. For instance, method *A* may generate the 'best' information, in the sense that it is closest to that regarded as ideal by the user. However, method *A* may involve high costs, whereas method *B*, which is cheaper, may provide less good information. The comparison of costs and benefits will involve social value judgements and may be very complex, particularly in situations where cost and benefit accrue to different groups. Nevertheless, this step must be taken explicitly, otherwise the costs of providing the information may be neglected.

A framework of this nature is important for the examination of many accounting issues, including the question of which financial accounting system to use in an inflationary environment. Without such a framework discussions will continue without meaningful progress being made. At the present time there are several alternative methods of accounting in a period of inflation, and each alternative has its supporters. A method of relating these alternatives to the needs of the users of financial statements is essential and the above framework for accounting would seem suitable. Certain aspects of the framework will now be considered in more detail. First, the establishment of the objectives of financial reporting will be discussed and some potential users of financial statements suggested. An application of the framework to the needs of a particular user group (investors) will be discussed later.

Objectives of Financial Accounting

Until recent years the objectives of financial reporting do not appear to have received explicit consideration in the pronouncements of professional accountancy bodies. The stewardship objective, discussed earlier, seems to have been taken for granted by accountants rather than explicitly discussed. When the professional bodies did mention the objectives or purposes of the financial statements, their comments tended to describe the current practice rather than explain the objectives which those practices were intended to achieve. For instance, in 1952 the Institute of Chartered Accountants in England and Wales stated that 'The primary purpose of annual accounts of a business is to present information to the proprietors, showing how their funds have been utilized and the profits derived from such use.'[12] This statement does identify the user of the financial reports (the proprietors) but says little about how the information is to be used.

In recent years more thought has been given to the objectives of financial reporting, particularly in academic writings, and notably in the United States. In 1966 the American Accounting Association, which comprises both professional and academic accountants, issued guidelines for the communication of accounting information, stressing that the information must be appropriate to the expected use by the potential users.[13] Moonitz went a step further when detailing his 'basic postulates of accounting'. He defined the objectives of

financial reporting as the provision of data for the selection of economic alternatives and for monitoring and evaluating progress and results.[14] Moonitz proceeded to point out that decisions are made under conditions of uncertainty and that relevant and useful quantitative data can reduce such uncertainty. The concepts of 'relevance' and 'usefulness' occur frequently in the recent literature and the nature of relevant and useful information has been discussed. Bevis stressed 'that *usefulness* is inherent in the full discharge of the accounting function',[15] and he defined useful information as that which corresponds to the users' needs. Moonitz, however, was not happy with the concept of 'usefulness' alone. He wrote that 'anyone who stresses "usefulness" as a criterion, in accounting or elsewhere, must answer the two pointed questions – useful to whom? and for what purpose?'[16]

The authors of *The Corporate Report* went some way towards answering the questions raised by Moonitz. They discussed the information needs of a number of potential user groups and defined the fundamental objective of corporate reports: 'to communicate economic measurements of and information about the resources and performance of the reporting entity useful to those having reasonable rights to such information'.[17] This definition raises questions concerning rights of user groups to receive information about business activities. The Trueblood Committee suggested a similar objective. They agreed that 'The basic objective of financial statements is to provide information useful for making economic decisions',[18] and, in their subsequent discussion, indicated that they generally regard investment decisions as the most important class of economic decisions to be based on financial reports.

These two studies have added a useful contribution to the debate about the objective of financial reporting, but their statements of objectives do not fully address all the fundamental issues: who are the users, what uses do they make of financial reports, what information do they require, and, also, what order of priority should be attached to the user groups in the case of a conflict of interest? More research is still needed.

There are two distinct approaches which can be adopted by researchers interested in the objectives of financial reporting. They are the normative and positive approaches; but, for an effective research programme, both should be followed. The normative approach involves a theoretical examination of the information

needs of the user groups considered worthy of examination. However, such research may overlook the availability of information from non-accounting sources which could satisfy some information needs of user groups. Accordingly the normative approach should be combined with a positive (or empirical) approach. The latter would involve asking members of potential user groups such questions as 'do you use financial reports?', 'for what purpose?' and 'what information do you require?' Answers to these questions should be interpreted cautiously, as the replies are likely to be affected by the nature of the information which is presently available. Nevertheless, an appropriate combination of the two approaches should lead to valid conclusions about the objectives of financial reporting.

A researcher interested in the objectives of financial reporting could begin work by listing the potential users considered worthy of investigation. Such a list might include the following set of users and uses:[19]

(i) the provision of information to shareholders (actual and potential) to guide their investment decisions, i.e. decisions on whether to buy, hold or sell securities;

(ii) the provision of information to inform shareholders of the uses to which their funds have been applied and the legality of those uses with a view to enabling the shareholders to exercise any legal remedies available;

(iii) the provision of information to guide creditors (long-term and short-term) in decisions on the allowance of future credit and the administration of existing indebtedness;

(iv) the provision of information to employees to guide their decisions on future relationships with the undertaking;

(v) the provision of information to managers to enable them to take efficient decisions in management;

(vi) the provision of information to the representatives of society to enable them to judge whether the activities of the undertaking are consistent with national objectives;

(vii) the provision of information to guide government officials in the assessment of taxation;

(viii) the provision of information to guide government officials in the enforcement of statutory controls; and

(ix) the provision of information to financial institutions to assist in the negotiation of financial facilities.

The above list is not intended to be comprehensive. No doubt there are other potential or actual user groups; but this list should provide a starting-point for research on objectives of financial reporting.

Next, both normative and positive approaches should be used to assess the information needs of each user group. A number of alternative research strategies are available. The theoretically preferred strategy requires a detailed examination of the information needs of each potential user group and a consideration of the interrelationships between the information needs of the various groups. Although it may be expected that the information needs of certain groups may be similar, e.g. investors and creditors, the possibility exists that there may be no single method of financial reporting which meets the information needs of all user groups. Taken to its logical conclusion, such a finding would indicate the need to publish a number of alternative financial reports. However, the publication of several reports could be costly and confusing to the users. Accordingly it may be more desirable to publish simple statements which satisfy most users reasonably well on average. If the information needs of each group are considered separately, a method of financial reporting which minimises the loss of information could be selected by comparisons with the ideal for each user group.

The above strategy will involve considerable research time, but it should be followed in the long term. However, in the meantime it will be necessary to produce some statement of objectives. Two other strategies are available. Financial reports could be designed to provide information to the dominant group among the users of financial reports. Stone suggested that shareholders are the dominant interest group because of the sheer size of their numbers, and because financial statements are addressed to them.[20] However, the selection of a dominant group will depend on value judgements, as there is no logical reason why any one should be selected.

The other alternative strategy involves the development of financial reporting to meet the informational needs of those groups which, *a priori*, appear to have similar requirements for information. The objectives of financial reporting identified in this way may be described as 'general-purpose objectives'. This was the approach adopted by the Sandilands Committee. (Their discussion of objectives is outlined later in this chapter.)

Both the dominant group and the general-purpose research strategies may prove useful in the short term, particularly if the

objectives defined by the researchers can become generally accepted. However, research of the information needs of each potential user group should continue, so that in the long run it will be possible to select preferred methods of financial reporting on the basis of improved criteria, such as the ideal information required by each user group. To illustrate the application of the framework for accounting, consideration is given below to the information needs of shareholders in their role as investors. This discussion may be interpreted as (the long-term) investigation of one user group (i.e. investors), or as the examination of the dominant group suggested by Stone. For purposes of the illustration the particular interpretation is unimportant.

Information for Investors

To illustrate an application of the framework for accounting, the information needs of investors will be used to discuss the selection of appropriate accounting techniques. Particular consideration will be given to the selection of methods of accounting in a period of inflation. Investors were selected because considerable research has already been undertaken on the valuation of stock-market investments and investment decisions. However, for present purposes many of the complexities of that research will be avoided.

In simple terms an investor may be expected to hold an investment during a forthcoming period if the anticipated market value of that investment at the end of the period, together with the dividends expected during the period, exceed the satisfaction he would derive from consuming the amount of the investment within the period. Accordingly for an investment decision the investor requires information concerning the anticipated market price, the expected dividends and his own impatience for consumption. Basic finance theory tells us that the market price of an equity investment is determined by the anticipated flow of dividends in future periods and the appropriate interest rate.[21] It follows from this very simplified discussion of an investment decision that an investor really requires information about the future flow of dividends from his investment.

The need for information about future dividend flows could be satisfied by a forecast of future operating flows and dividend payments as far into the future as possible. The senior managers of a business will probably be in the best position to make such forecasts

and may already use such information for their own internal planning. However, at the present time there appears to be considerable resistance by both managers and accountants to the publication of forecasts. But the conclusion cannot be denied: forecasts of future dividends would provide relevant and useful information to investors. None the less, if dividend forecasts are unlikely to be published, an alternative and more acceptable form of financial reporting is essential. This situation has led some accountants to look for a link between financial reports and future dividends, and to suggest the adoption of a predictive-value criterion.

Information about future dividend flows is necessary for investment decisions, and accounting data may be used by investors when they formulate their dividend expectations. Accounting information which assists investors to make better dividend predictions may be deemed more useful (to investors) than accounting information which leads to less good predictions. In other words, accounting information with the highest predictive value should be preferred. At this point it is important to understand the role of the accounting data in the prediction process. Accounting data are inputs in an investor's decision model, but it is the investor who makes the predictions, not the accountant. The accountant makes available certain input data. None the less, accounting researchers can investigate the predictive value of the alternative accounting methods.

An acceptance of a predictive-value criterion should prompt accounting researchers to examine the models for dividend prediction available to investors. It may be argued that investors are not very sophisticated and only simple implicit models are used. This would suggest two possible approaches to the research. The first approach is to accept that investors are generally unsophisticated and to attempt to identify the crude prediction models actually used. The accounting alternatives can then be evaluated using such a crude model to compare the predictions that the model will generate when the accounting information provided by each alternative is used as input. The second and more fundamental approach is to investigate all available prediction models. If a single best prediction model can be identified, and investors (or their advisors) encouraged to use that model, the accounting alternatives could then be evaluated by considering the information inputs required by that model.

Once agreement is reached on a prediction model (simple or

complex), it could be used to investigate various accounting problems. The question of accounting in a period of inflation could be examined by testing alternative sets of accounting data prepared, using historical cost, C.P.P. and the various concepts of current value. The data may be for real or hypothetical companies. The tests should be designed to indicate the ability of each available accounting method to generate data which provide good predictions of future dividend flows.

In fairness it should be pointed out that not all accounting researchers accept the predictive-value criterion. Some argue that the role of accounting is to act as a control device. Accounting data, it is argued, can do no more than assist investors to evaluate at the end of an accounting period the predictions previously made about that period. However, the evaluation of current predictions will provide inputs for subsequent predictions. Accordingly it is impossible to separate the control and prediction aspects of a continuing decision process. Nevertheless, the predictive-value criterion and investors' information needs were only used to illustrate an application of the framework for accounting. The rejection of the predictive-value criterion does not mean that the whole framework must be abandoned; the framework is quite workable without an acceptance of predictive value in accounting.

The above discussion outlines some long-term accounting research. Little effective research in this area has been done to date and much remains to be accomplished. In the meantime what can be said about the usefulness of the alternative methods of financial reporting in a period of inflation? (Unfortunately, little can be said that will not be rejected by at least some writers.) However, a *prima facie* case may be made for current-value accounting, as a means of providing information to investors for decision purposes. Although not necessarily ideal, contemporary information based on current value is more likely to be relevant for decision purposes than historic information.

Revsine suggested that ideal information for investors would indicate the economic value of the business (and its assets) based on the expected future cash flows to be derived from it. However, as already pointed out, reporting future cash flows does not appear feasible at the present time. Accordingly Revsine attempted to construct an analytical bridge between replace-cost accounting and the economic concepts of 'income' and 'value'.[22] He demonstrated that:

> in a perfectly competitive economy, the current operating component of replacement cost income is equal to the distributable operating flow component of economic income ... [and] the realisable cost savings component of replacement cost income is equal to the unexpected income component of economic income.[23]

The focus of Revsine's attention was the usefulness of replacement-cost income as a 'lead-indicator' of future operating flows. His arguments may be briefly summarised in the following terms. Long-term equity investors are, in general, interested in future operating flows of the business. Such operating flows are summarised in the economic value of the enterprise – as measured by the present value of the future flows. The economic measure of income provides a link between successive economic values of the business. The expected component of economic income measures the flows which the business should be capable of earning into the indefinite future, whereas the unexpected component measures the changes due to environmental factors which were not foreseen at the start of the period. Thus economic income (and, in particular, its expected component) provides an indication of likely future operating flows. However, because of measurement difficulties, some surrogate measure is required for economic income. Revsine demonstrated that replacement-cost income should provide a reliable surrogate. He argued that in conditions of perfect markets all available knowledge and expectations will be reflected in market prices and, accordingly, replacement costs will be equivalent to a measure of economic value based on those generally held expectations. Thus replacement costs will provide useful information for investors.

When the assumption of perfect competition was removed, Revsine indicated that replacement-cost income becomes only an approximation to economic income – the strength of the approximation depends on the relationship between the prices of assets and their future operating flows. Revsine quite rightly suggested that empirical research is required to determine the extent of market imperfections which create a divergence between the price of an asset and its future operating flows. None the less, his analysis does suggest a strong case for the use of replacement costs.

Revsine was primarily interested in asset valuation, and his work does not help greatly in the selection of a concept of capital maintenance. However, if the financial statements are intended for

investors (including existing shareholders), the proprietary view of the business would seem most appropriate. This view implies a shareholder purchasing-power concept of capital maintenance. But in view of the difficulties (discussed in Chapter 5) of measuring purchasing power for a non-homogeneous group of investors, a money-value concept of capital maintenance may be more desirable. Revsine used this approach in his book. However, he abstracted from inflation in his analysis and it is not clear whether he would include general purchasing-power adjustments in his financial statements.

The above comments suggest that a system of replacement-cost accounting with a money-value concept of capital maintenance should provide useful information for investors. This is similar to the conclusions reached by the Sandilands Committee, with two exceptions. First, they suggest writing-down some asset values to net present value or net realisable value as appropriate in certain circumstances when replacement costs are not an appropriate measure of value. Second, an operating-capacity concept of capital maintenance is used in their profit and loss account, although the total (money) gains are also reported in a note to the financial statements.[24] The objectives of financial accounting on which the Sandilands Committee based their proposals are discussed below.

The Sandilands Committee's Objectives

In Chapter 5 of their report, the Sandilands Committee discussed the 'requirements for information of users of accounts'.[25] In particular, they considered the information needs of the following groups: shareholders; investment analysts; the City (Stock Exchange, etc.); creditors and lenders; other companies; employees; management; the government and official bodies; and the general public. As part of their enquiry the Committee wrote to over forty organisations which they considered representative of the major users of published accounts in the United Kingdom, and concluded that the information needs of users are, in many instances, similar. Each user group in the above list was discussed in turn. Some of the main points in that discussion are outlined below.

The Sandilands Committee was not impressed by the frequent suggestion that the first requirement of shareholders is for accounts to demonstrate that their funds have been fully accounted for and that no illegal activities have taken place. They doubted whether

accounts can demonstrate this or that one system of accounts can demonstrate it better than another. They asserted that:

> the shareholder's principal protection against improper use of his funds is not the method of presentation in itself, but the legal requirement that those accounts, on whatever basis they are presented, should be audited by a qualified member of one of the Institutes or Associations of the accounting profession.[26]

It was suggested by the Committee that shareholders require information about their company's activities to assist in judging the performance and efficiency of the management and for making investment-related decisions.

The Committee conceded that the most useful basis for the measurement of net assets for a shareholder purely concerned to see how the company's funds have been used is probably historic cost. However, in order to go further than this and to assess the performance of management, the shareholder requires information on the net assets of the business which will enable him to judge the return being earned on capital employed. For this purpose the shareholder is likely to be interested in an assessment, on a going-concern basis, of the future benefits that can be obtained from the business' assets. The members of the Sandilands Committee believed that this information would best be communicated by asset values which are based on their 'value to the business' (as defined in Chapter 5 above – normally replacement costs, but in certain special circumstances net present value or net realisable value).

It was stressed by the Committee that no accounting system can predict a company's future prospects. But they suggest that:

> an accounting system can at least ensure that the profit figure reported is such that, if the profit for the year were fully distributed, it would not prejudice the ability of the company to continue to generate the same profit in future years if revenues earned and cost incurred in future years were the same as in the year of account.[27]

They then made an assertion which is similar to the results of Revsine's analysis. A measure of 'operating profit' provides an indication of the profit that the business should be capable of maintaining into the indefinite future. Holding gains, however, reflect the current environmental conditions which may not be typical of

normal activities and are generally outside the control of the management. It was concluded that only the operating profit should be reported in the profit and loss account, as this will both provide relevant information for shareholders and prevent the management from unintentionally distributing its operating capital. But total gains (operating profit plus holding gains) are also of interest to shareholders as an indication of the management's efficiency and for making comparisons with other companies. Accordingly the Committee recommended that total gains should be reported in a note to the financial statements (as illustrated in Chapter 6).

The information needs of potential shareholders (i.e. investors in general), investment analysts and the City were found to be essentially the same as existing shareholders. The submissions to the Sandilands Committee from creditors and lenders indicated that this group of users requires information about the business' profits and gains that would also be useful to existing shareholders; but in addition they also require information about the realisable value of the business' assets, both in the normal course of business and in forced sale. However, it was contended by the Committee that financial statements cannot in general be expected to show a valuation on a forced sale. Thus the information needs of creditors and lenders are not identical to the needs of existing shareholders, and will not be fully met by the method of current-cost accounting (C.C.A.) proposed by the Sandilands Committee.

Other companies may wish to assess the performance of a business to monitor competition, to consider it for investment, acquisition or merger, or for financial comparisons. The information needed for these purposes is similar to the information required by existing shareholders. In addition other companies may wish to appraise a business to check credit-worthiness of a customer or supplier – this information need is similar to the needs of creditors and lenders. Accordingly the information needs of other companies are similar to the needs of existing shareholders, creditors and lenders.

The Sandilands Committee was unable to obtain the assistance of the T.U.C. for its assessment of the information needs of employees. However, using other evidence they concluded that employees generally need similar information to that required by existing shareholders. Management also was found to have similar information needs as far as published financial reports are concerned. However, it was pointed out that most managers require consider-

ably more financial information than is contained in the published reports. The Committee suggested that the internal management information should be prepared on the same basis as the published data.

It was concluded that financial statements containing asset valuations in terms of 'value to the business' will provide useful information to the government and general public for the purpose of assessing a business' (or all businesses') contribution to G.D.P. However, it was suggested that quantitative financial reports were unlikely to be able to satisfy these groups' needs for information about the social responsibility of businesses.

To summarise, the Sandilands Committee found that many user groups have similar requirements for information, and that, in particular, information designed for existing shareholders should meet much of the information needs of other user groups. However, there are some particular information needs of certain groups which will not be satisfied by such information and should be met from other sources. The information needs of existing shareholders were found to be similar to those suggested earlier in this chapter. Accordingly it is not surprising to note that the Sandilands Committee's recommendations are similar to Revsine's proposals.

Conclusion

Further research is required for a proper understanding of the objectives of financial reporting. Such research is required on a continuing basis as the information needs of the users of financial statements may alter as the nature of the economic and social environment changes. For the time being current-cost accounting appears to meet the needs of financial statement users, at least in so far as they are understood at present. Accordingly it may be concluded that the introduction of current-cost accounting[28] should represent a major step forward for the accounting profession in its role as a provider of relevant information. However, it must be admitted that accounting should be dynamic and respond to changes in the information needs of financial-statement users. Information which is relevant today may not be relevant in the future. Accounting research should continue to search for ways of improving methods of financial reporting.

CHAPTER 8

Appraisal of Capital Projects

The implications of inflation for financial accounting were discussed in earlier chapters. This focus on financial accounting is consistent with the generally accepted interpretation of the term 'inflation accounting'. However, inflation creates further accounting problems which, if ignored, may lead to inadequate (or incorrect) accounting information. The management accountant of a business enterprise is generally responsible for the provision of information to assist managers in their decision-making. If the management accountant ignores the impact of inflation on the information he is collecting, summarising and communicating to management, the decisions taken by those managers may not be optimal. In Chapters 8 and 9 the implications of inflation for management accounting will be discussed. The provision of information for short-run operating decisions and budgetary control are discussed in Chapter 9, while this chapter is concerned with the use of discounted cash-flow methods of appraising capital projects.

Despite a substantial literature on the subject, project appraisal under conditions of inflation is not a theoretically difficult task. However, there are practical difficulties associated with the estimation of future cash flows from projects with lives of several years or more. The estimation of future cash flows can be a problem when there is little or no inflation, and rapidly changing prices make the task more complex. While acknowledging the practical difficulties of estimating future cash flows, for purposes of this chapter it will be assumed, in general, that such estimates can be made. The prediction of future price changes is discussed in Chapter 9.

A Model for Project Appraisal

Discounted cash flow (D.C.F.) techniques are generally accepted as

an appropriate method for the appraisal of capital projects which involve cash flows over a number of years.[1] The D.C.F. concept is particularly attractive as it enables account to be taken of the timing of cash flows over the entire life of a project. To illustrate the D.C.F. method of project appraisal a simple numerical example is used. For the present, it will be assumed that the general level of prices is expected to remain stable. The management of Alpha Limited is considering a capital project which requires an initial outlay of £28,980, payable immediately. This project would produce net cash inflows of £9290; £12,152; £15,717 and £10,069 at the end of each of the next four years. Finance for the project could be raised at an interest cost of 20 per cent p.a. The cash flows from such a project can be discounted and expressed in terms of present value. The calculation of the net present value may be expressed symbolically as follows:

$$V_0 = -A_0 + \frac{d_1}{(1+i)} + \frac{d_2}{(1+i)^2} + \ldots + \frac{d_n}{(1+i)^n}, \quad (8.1)$$

or equivalently:

$$V_0 = \sum_{j=1}^{n} \frac{d_j}{(1+i)^j} - A_0. \quad (8.2)$$

In these expressions d_1, d_2, d_j and d_n represent the net cash inflows arising at the end of periods 1, 2, j and n respectively. A_0 represents the initial outlay required to undertake the project, i the cost of capital to the company (expressed as a rate per period) and n the life of the project (measured in periods).

The data given above for Alpha Limited can be used in equation 8.1:

$$V_0 = \frac{9290}{1.2} + \frac{12{,}152}{(1.2)^2} + \frac{15{,}717}{(1.2)^3} + \frac{10{,}069}{(1.2)^4} - 28{,}980.$$

Accordingly, $V_0 = 1152$.

The present value of £1152 represents the surplus which will arise if the project is undertaken. The nature of this item may be expressed in alternative forms: for instance, it may be described 'as the maximum amount a firm could pay for the opportunity of making the investment without being financially worse off'.[2] Alternatively its nature may be illustrated by continuing the example. It can be demonstrated that if the project is undertaken, the finance which

could be raised and then repaid with interest out of the proceeds from the project will be sufficient to (i) undertake the project and (ii) pay an immediate dividend of £1152 to the owners of the business. The cash flows are illustrated in Table 8.1.

Table 8.1 *Alpha Limited – investment project*

	Period 1	Period 2	Period 3	Period 4
	£	£	£	£
Finance borrowed	30132	—	—	—
Balance brought forward	—	26868	20090	8391
Interest due (20 per cent)	6026	5374	4018	1678
	36158	32242	24108	10069
Repayment (out of proceeds from project)	9290	12152	15717	10069
Balance carried forward	26868	20090	8391	—

If Alpha Limited undertakes the project, a loan of £30,132 could be raised to provide the outlay of £28,980 and an additional £1152 for distribution to the owners. However, the management of Alpha Limited may not raise the additional finance as they may prefer to wait until the surplus is realised through the project. None the less, the £1152 represents the present value of the surplus generated by the project. A general rule for project appraisal is to accept projects with positive present values (i.e. where $V_0 > 0$),[3] as such projects generate a cash-flow surplus. Accordingly Alpha Limited's proposed project should be undertaken.

An alternative D.C.F. method of project appraisal uses the concept of an 'internal rate of return'. This is the interest rate which leads to a zero present value for the project. In terms of equations 8.1 and 8.2, the internal rate of return is the interest rate at which V_0 is zero. Accordingly the internal rate of return of Alpha Limited's proposed project can be determined by evaluating i in the following expression:

$$0 = \frac{9290}{(1+i)} + \frac{12{,}152}{(1+i)^2} + \frac{15{,}717}{(1+i)^3} + \frac{10{,}069}{(1+i)^4} - 28{,}980$$

This complex equation can be solved by a trial-and-error approach. Successive values of i can be tested, and the value which gives a zero

present value selected – in this case 22 per cent. This is the internal rate of return; 22 per cent is the highest interest rate that should be paid to finance this project. The cash flows from the project are sufficient to repay, with interest at 22 per cent, a loan of £28,980 – i.e. the amount required to undertake the project. If the interest rate exceeds 22 per cent the cash flows will not be sufficient to repay that amount, whereas if finance can be raised for less than 22 per cent the project will generate surplus cash flows. This leads to a general rule that projects should be undertaken when the cost of finance is less than the internal rate of return.

For various theoretical reasons the net present value criterion (using the actual cost of finance to compute the project's present value) is normally preferred to the internal rate of return approach.[4] In this chapter the calculation of net present values will be discussed, although the principles have equal validity in situations where it is appropriate to use the internal rate of return.

Cash-Flow Estimates

The primary concern of this chapter is the impact of inflation on D.C.F. methods of project appraisal. For this purpose it is important to recall the distinction made in earlier chapters between general price-level changes (inflation) and movements in the prices of specific goods and services. As discussed in Chapter 1, specific price changes result from a combination of inflation and relative price movements. This distinction must be recognised when estimating the cash flows from capital projects, as future cash flows may be affected by both relative price changes and inflation. These effects can be illustrated by means of a numerical example.

The management of Beta Limited is considering a capital project which is similar to the project of Alpha Limited discussed above; but Beta Limited operates in an economy where an annual inflation rate of 12.5 per cent is expected for the period of the project. The cash flows expected from Beta's project are computed as follows. The outlay of £28,980 will enable the company to sell 200 units of a certain product in each of the following three years and a further 100 units in year 4. At the date the project is evaluated (i.e. the beginning of year 1) the current price of the product is £100 per unit and each unit requires £40 of materials at the current prices and £25 of labour at the current wage rate (current prices and

current wage rates are those prevailing at the time the project is evaluated). If there are no other variable costs associated with this project, the net cash flow from the sale of one unit at current prices is £35. This information is used to compute the cash flows in Table 8.2.

Table 8.2 *Beta Limited – cash flows at current prices*

	Year 1	Year 2	Year 3	Year 4
	£	£	£	£
Sales (in units)	200	200	200	100
Sales revenue	20000	20000	20000	10000
Variable cost of sales				
Materials	8000	8000	8000	4000
Labour	5000	5000	5000	2500
	13000	13000	13000	6500
Net cash flows (at current prices)	7000	7000	7000	3500

The next step in computing expected cash flows is to estimate the effect of price changes. The anticipated rate of inflation is 12.5 per cent p.a. for the period of the project. In the absence of further information, a best estimate of monetary cash flows can be computed by adjusting the estimated net cash flows at current prices (as in Table 8.2) by the expected rate of inflation. This provides the following cash-flow estimates:

$$\begin{aligned}
\text{Year 1} - £7000(1 + 0.125) &= £7875 \\
\text{Year 2} - £7000(1 + 0.125)^2 &= £8859 \\
\text{Year 3} - £7000(1 + 0.125)^3 &= £9967 \\
\text{Year 4} - £3500(1 + 0.125)^4 &= £5606
\end{aligned}$$

However, not all prices will change precisely in line with inflation. Relative price changes may affect the relevant prices of the inputs and outputs. These factors may greatly affect the cash flows from the project.

For the illustration, it is assumed that the directors of Beta Limited have formed expectations about the future trend in the relevant specific prices. The selling price of the product is expected to increase 20 per cent each year, and the material and labour costs

by 12 and 15 per cent respectively. The expected price increases are used in Table 8.3 to compute the monetary cash flows. The material and labour costs and sales revenues at current prices (as in Table 8.2) are each adjusted for the appropriate price increase. For instance, the year-1 sales revenue at current prices, £20,000, is adjusted for the expected increase in selling price of 20 per cent. Accordingly in Table 8.3 the sales revenue for year 1 is £20,000 + 20 per cent, i.e. £20,000(1 + 0.2) = £24,000; similarly the expected sales revenue in year 2 is £20,000$(1 + 0.2)^2$ = £28,800; and so on. The expected material and labour costs are calculated in the same way, using the appropriate rate of price increase. A comparison of the revenues and costs for each year yields the net cash flows.

The monetary cash flows calculated in Table 8.3 are the cash flows used in the Alpha illustration. But it must be stressed that the

Table 8.3 *Beta Limited – monetary cash flows*

	Annual rate of price increase (per cent)	Year 1	Year 2	Year 3	Year 4
		£	£	£	£
Sales revenue	20	24000	28800	34560	20736
Variable cost of sales					
Materials	12	8960	10035	11239	6294
Labour	15	5750	6613	7604	4373
		14710	16648	18843	10667
Net cash flows (in money values)		9290	12152	15717	10069

two illustrations are quite distinct. Alpha Limited is operating in an economy with no inflation, while Beta Limited anticipates an inflation rate of 12.5 per cent p.a. It can be observed that the cash-flow estimates computed in Table 8.3 (i.e. £9290, £12,152, £15,717 and £10,069) differ substantially from the estimates derived by adjusting the cash flows at current prices for the expected rate of inflation (i.e. £7875, £8859, £9967 and £5606). The difference reflects the impact of changes in the relative prices of the goods and services involved in the project. The two sets of estimates will be identical only if all

prices relevant to the project change in line with inflation. If this condition is not expected to hold, consideration must be given to the anticipated price changes of all relevant goods and services when computing the expected cash flows.

The Cost of Capital

In the Alpha illustration the cost of raising the finance for the proposed project was used to discount the expected cash flows to present values. Generally the discount rate should reflect the business' cost of capital – i.e. the opportunity cost of raising finance expressed as a rate of interest.[5] In a period of inflation an interest rate can be divided *ex post* into two elements: (i) the amount required to maintain the purchasing power of the investment; and (ii) the real return. By way of illustration, consider an investment of £1000 for one year in an undated security yielding a money return of 15 per cent payable on the last day of the year. For simplicity, capital gains will be ignored and the money value of the investment assumed to be £1000 at both the beginning and end of the year. If the annual rate of inflation is 10 per cent, the initial investment may be expressed in terms of year-end purchasing power as £*C*1100(year-end), whereas the ending investment is only £*C*1000(year-end). (The £*C* notation was explained in Chapter 3.) Accordingly a return of at least £*C*100(year-end) is required to compensate for this loss. As the monetary return of £150 is received at the end of the year, it is measured in year-end purchasing power. Of the total amount received, £100 may be deemed compensation for the purchasing-power loss and the remaining £50 regarded as the real return on the investment. To compute the real rate of return, the £50, which is measured in year-end purchasing power, should be expressed as a percentage of the initial investment similarly measured. Thus the real rate of return on the investment is £50/£1100 × 100 per cent = 4.545 per cent.

The *ex post* relationship between the monetary and real rates of interest (i and γ respectively) and the rate of inflation (ρ) is normally written as follows (i, γ and ρ are all expressed as fractions for this purpose):

$$(1 + i) = (1 + \gamma)\,(1 + \rho), \tag{8.3}$$

or, rearranged:

$$\gamma = \frac{(1 + i)}{(1 + \rho)} - 1. \tag{8.4}$$

The real rate of return on the undated security calculated above can be confirmed using equation 8.4; i.e. $(1 + 0.15)/(1 + 0.10) - 1 = 0.04545$, or 4.545 per cent. It is suggested by some writers in the project-appraisal literature that the real cost of capital should be used in the appraisal of capital projects. However, the relationship between the real and monetary interest rates implied by equations 8.3 and 8.4 can be criticised. Furthermore, the cost of capital (i.e. the interest payments) must be paid to investors, creditors, etc. in money units. Accordingly it may be easier to determine the money interest rate than the real rate.

The relationship expressed in equation 8.3 is a truism which defines an *ex post* measure of the real rate of return. It is generally agreed that market interest rates do not depend on past inflation, but on the rate of inflation anticipated in the future. Furthermore, it is contended by some economists, and supported by empirical evidence, that market interest rates do not fully reflect anticipated inflation.[6] Such theoretical and empirical arguments about the *ex ante* determination of market interest rates do not affect the *ex post* relationship defined in equations 8.3 and 8.4. However, there are problems associated with the measurement of an appropriate *ex post* measure of inflation for those equations.

As argued in Chapter 3, purchasing power is unique to each individual and, accordingly, the real return on investment must be computed separately for each investor. Consider an individual with savings of D_0. He can consume that amount now, or invest some or all of the amount and consume the outcome of the investment at some future time. If the individual prefers consumption earlier rather than later, he will require some return on his investments to encourage him to forgo current consumption. This return must represent additional consumption to the individual. Thus it must be a real return. If the required return is γ' per period, an investment of D_0 for n periods must yield a return of at least D_n^* to be accepted (for simplicity it is assumed that amounts to be received in the future entail no risk). D_n^* is expressed as:

$$D_n^* = D_0(1 + \gamma')^n. \tag{8.5}$$

However, if the prices of the goods consumed by the individual

increase at a rate of ρ' per period over the n time periods a money amount, D_n, will be required such that the desired consumption is achieved. The required money amount can be expressed as follows:

$$D_n = D_n^*(1 + \rho')^n. \tag{8.6}$$

By combining equations 8.5 and 8.6 it follows that the relationship between the sum invested now and the required money amount in n periods can be written as:

$$D_n = D_0(1 + \gamma')^n(1 + \rho')^n. \tag{8.7i}$$

This relationship may be expressed in an alternative form using the monetary interest rate, i. As the sum invested now, D_0, and the required future amount, D_n, are both measured in money units, it follows that:

$$D_n = D_0(1 + i)^n. \tag{8.7ii}$$

A comparison of equations 8.7i and 8.7ii indicates the relationship between the real and monetary rates of interest which was expressed by equation 8.3.

In the above illustration, ρ' represented the change in the *individual's* purchasing power, i.e. the increase in the prices of goods and services in his consumption plan. The suitability of a general consumer price index as a measure of purchasing-power changes was discussed in Chapter 3, where it was concluded that a published price index is unlikely to be suitable for all individuals, and in particular, the retail price index is unsuitable as a measure of purchasing-power changes for individuals who are investors or potential investors. To calculate the real return to an investor, the change in his personal purchasing power should be used, in equation 8.3. As a unique value of ρ for all investors is unlikely to exist, a unique value for the real rate of return cannot be expected. There is no mechanism, even in a perfect capital market, that will ensure a unique real interest rate.

It follows from such arguments that attempts to divide the monetary interest rate into a real rate and a purchasing-power adjustment is of doubtful validity. It would therefore seem desirable to avoid such a dichotomy whenever possible. As the money interest payments represent actual or potential cash outlays, and as a theoretically valid method of appraising projects in money units is available, the calculation of a real interest rate is unnecessary.

The Treatment of Inflation

The desirability of using monetary rather than real interest rates was suggested above. Accordingly Beta's project will be evaluated at the monetary interest rate. Assuming the cost of capital to Beta Limited is 20 per cent, the expected money cash flows, computed in Table 8.3, can be discounted as follows:

$$V_0 = \frac{9290}{1.2} + \frac{12{,}152}{(1.2)^2} + \frac{15{,}717}{(1.2)^3} + \frac{10{,}069}{(1.2)^4} - 28{,}980$$
$$= 1152.$$

This is identical to the calculation of the net present value from Alpha's project, when no inflation was assumed. In the illustration of Beta, the same monetary cash flows are used, but they are assumed to reflect all price changes. In both cases the cost of capital is expressed as a monetary rate. It was demonstrated in Table 8.1 that the present value of £1152 from Alpha's project represents the surplus immediately available as a result of undertaking the project. A similar table could be prepared for Beta's project – the figures would be identical to those shown in Table 8.1. Accordingly the present value of £1152 from Beta's project may be interpreted in the same way, and the project should be undertaken.

The above illustration suggests the conclusion that inflation does not significantly affect the net present value method of project appraisal. The monetary cost of capital can be used to discount the money cash flows to a present value. This method is preferred as it avoids the use of a real interest rate which may be difficult to identify. None the less, if the real cost of capital can be estimated, it may be used in an alternative calculation of a project's net present value.

The calculation of present value from money cash flows using the monetary cost of capital, as illustrated above, can be expressed symbolically in the terms used in equation 8.2:

$$V_0 = \sum_{j=1}^{n} \frac{d_j}{(1+i)^j} - A_0,$$

where A_0 represents the initial outlay, i the monetary cost of capital, and d_j the monetary cash flow in period j. A new term, d_j^*, may be

defined to represent the current purchasing-power equivalent of a cash flow in period j, as follows:

$$d_j^* = \frac{d_j}{(1 + \rho)^j}. \tag{8.8}$$

In financial accounting monetary amounts are normally restated in purchasing power equivalents of some later period. But in equation 8.8 cash flows arising in a subsequent period are restated at the purchasing power of the money unit on the day the project is evaluated.

Equation 8.8 can be used to substitute for d_j in equation 8.2; thus:

$$V_0 = \sum_{j=1}^{n} \frac{d_j^*(1 + \rho)^j}{(1 + i)^j} - A_0. \tag{8.9}$$

The relationship between real and monetary interest rates and a purchasing-power adjustment was discussed earlier. Using the relationship expressed in equation 8.3, equation 8.9 may be rearranged as follows:

$$V_0 = \sum_{j=1}^{n} \frac{d_j^*}{(1 + \gamma)^j} - A_0. \tag{8.10}$$

In words, the present value of a project can be computed by discounting the current purchasing-power equivalents of the expected cash flows by the real cost of capital.

Beta's project will be used for illustration. An inflation rate of $12\frac{1}{2}$ per cent per year is expected. The money cash flows set out in Table 8.3 can be restated as current purchasing-power equivalents as follows:

		£C (start year 1)
end of year 1	9290/1.125	= 8258
,, 2	12,152/$(1.125)^2$	= 9602
,, 3	15,717/$(1.125)^3$	= 11,039
,, 4	10,069/$(1.125)^4$	= 6286

The real cost of capital can be computed from equation 8.4.

$$\gamma = \frac{1 + 0.20}{1 + 0.125} - 1 = 0.06667$$

$$= 6\tfrac{2}{3} \text{ per cent.}$$

These figures may now be used in equation 8.10 to compute the present value of Beta's project:

$$V_0 = \frac{8258}{1.06667} + \frac{9602}{(1.06667)^2} + \frac{11{,}039}{(1.06667)^3} + \frac{6286}{(1.06667)^4} - 28{,}980$$
$$= 1152.$$

The present value of £1152 is identical to the figure calculated from the money cash flows. Thus either method may be used for project appraisal and identical decisions should result. Provided the purchasing-power adjustment used to calculate the real cost of capital is also used to restate the money cash flows, the computed present value will always be identical to the value found by the monetary approach. Accordingly the choice of a measure of purchasing power is not critical to project appraisal, and the problems associated with measuring purchasing-power changes are irrelevant for that purpose. However, in view of the difficulties of ascribing a sensible and unique meaning to the computations of the real cost of capital and purchasing-power adjustment, it would seem desirable to avoid their use – particularly when the monetary approach provides an identical answer in a theoretically sound and practically simpler way.

It is important to realise that the current purchasing-power equivalents of the expected cash flows are unlikely to correspond to the cash flows computed at current prices. Table 8.2 presented the four year's cash flows at current prices for Beta's project, as follows: £7000; £7000; £7000; £3500. On the other hand, the current purchasing-power equivalent of the expected cash flows were calculated above as follows: £8258; £9602; £11,039; £6286. The two sets of figures differ because relative price changes are expected to influence the project's inflows and outflows. It is tempting to evaluate projects by discounting the cash flows at current prices by the real cost of capital. However, such an approach will not necessarily measure the present value of the project. Beta's project would be rejected if evaluated in this way:

$$V_0 = \frac{7000}{1.06667} + \frac{7000}{(1.06667)^2} + \frac{7000}{(1.06667)^3} + \frac{3500}{(1.06667)^4} - 28{,}980.$$

Accordingly $V_0 = -7794$. A negative present value suggests a loss

would result from the project; but, as explained above, the figures in Table 8.1 demonstrate that a surplus will be available from such a project.

The negative present value would have been larger if the monetary cost of capital had been used to discount the cash flows at current prices – a practice which appears to be adopted by some companies.[7] This procedure involves duplicate adjustments for inflation – first, in the C.P.P. adjustment (or in computing cash flows at current prices), and second in the monetary cost of capital (which includes a purchasing-power element). If capital projects are evaluated in this way, managers may reject a project which has the potential to generate a surplus.

Discounting cash flows at current prices will lead to optimal decisions only if the real cost of capital is used and all prices associated with the project change at the rate of inflation. However, if little information is available about the movements in the appropriate relative prices, a best estimate may be that all prices will change in line with inflation. In that case an estimate of a project's present value can be computed by discounting the cash flows at current prices by the real cost of capital (which may be computed by adjusting the monetary cost of capital for the expected inflation rate); but in general the estimate of cash flows at current prices should only be used as a first step in the calculation of the expected money cash flows.

Conclusion

For the evaluation of capital projects by D.C.F. methods in a period of inflation it is desirable to discount the expected money cash flows by the monetary cost of capital. The alternative of using current purchasing-power equivalents of expected cash flows and the real cost of capital involves use of a purchasing-power adjustment which can be regarded, at best, as purely arbitrary. Such adjustments are not essential and it would seem wise to avoid them. However, if the real cost of capital and the purchasing-power adjustment are consistent with the business' monetary cost of capital, the alternative approach using the C.P.P. equivalent will lead to optimal decisions. None the less, the monetary approach seems the most desirable, and it is likely to be the more practical method when shifts in relative prices are anticipated.

Appendix: Principles of Discounting

COMPOUND INTEREST

Interest represents a cost of using money to finance investment projects. It is a cost which relates to both money borrowed and money owned. In the case of borrowed money interest generally involves an outlay. There is no such outlay for money owned, but there is an opportunity cost to consider in decision-making. When money is invested in one project, the interest which could be earned from other investment opportunities is forgone. This loss of interest represents an opportunity cost to the project.

The interest charged on money borrowed or earned on money lent is normally compounded. In other words, interest charges are computed periodically (e.g. annually or semi-annually) and the amount added to the current balance outstanding. For instance, if £10,000 is placed in a savings account at 8 per cent interest, compounded annually, interest of £800 will be earned in the first year (£10,000 × 0.08). This interest is added to the original deposit of £10,000 and interest for year 2, £864, is calculated on the total amount outstanding (£10,800 × 0.08). Interest of £933.12 will be earned in year 3 (£11,664 × 0.08), and so on. The interest calculations are summarised in Table 8.4 by applying the interest, i, to the balance outstanding at the end of the previous year (i.e. start of the current

Table 8.4 *Compound-interest calculations*

Year	Interest earned during year	Balance outstanding at end of year	
0		P_0	
1	iP_0	$P_0 + iP_0 = P_0(1 + i)$	
2	$i[P_0(1 + i)]$	$P_0(1 + i) + i[P_0(1 + i)]$	$= (P_0 + iP_0)(1 + i)$ $= P_0(1 + i)^2$
3	$i[P_0(1 + i)^2]$	$P_0(1 + i)^2 + i[P_0(1 + i)^2]$	$= (P_0 + iP_0)(1 + i)^2$ $= P_0(1 + i)^3$
.	.		.
.	.		.
.	.		.
n	$i[P_0(1 + i)^{n-1}]$	$P_0(1 + i)^{n-1} + i[P_0(1 + i)^{n-1}]$	$= (P_0 + iP_0)(1 + i)^{n-1}$ $= P_0(1 + i)^n$

Note: P_0 = amount of original deposit, at end of year 0; i = interest rate per annum, compounded annually.

year). The table shows the amount of the deposit plus interest at the end of any year, n, to be $P_0(1 + i)^n$.

DISCOUNTING

The basic reason for discounting is that the timing of money returns can affect their attractiveness. A receipt of £1000 now will normally be preferred to a certain receipt of £1000 in two years' time. This is because the £1000 now could be invested to yield more than £1000 in two years' time. If the receipt now is deposited in a 6 per cent savings account, compounded annually, it will realise £1123.60 after two years ($1000[1 + 0.06]^2$). This exceeds the amount of the alternative, £1000, in two years' time. This example illustrates the calculation of a future value. Compound interest was used to compare the alternative opportunities which arrive at different dates, i.e.:

Time scale	Now	1 year	2 years
Opportunity 1	£1000	compounding →	£1123.60
Opportunity 2			£1000

The alternative and more widely used method of comparing amounts received at different dates is the calculation of present value by the technique known as 'discounting'. A right to receive £1000 two years hence could be used as the basis for borrowing now an amount which could be repaid with interest by the future receipt. The amount to be borrowed, PV, can be calculated with the aid of the compound-interest formula for two years. The amount outstanding after two years will be $PV(1 + i)^2$, but this must equal £1000. Accordingly:

$$1000 = PV(1 + i)^2,$$

and

$$PV = \frac{1000}{(1 + i)^2}.$$

Assuming the interest rate is 6 per cent, as used previously, the present value of the £1000 to be received in two years' time amounts to $1000/(1 + 0.06)^2 = £890$. Once again the alternative of £1000 now is shown to be more attractive. In this case the interest was used to discount the future value to a present value, i.e.:

Time scale	Now	1 year	2 years
Opportunity 1	£1000		
Opportunity 2	£890	← discounting	£1000

The calculation of present values can be generalised by considering a future receipt, FV_n, in period n. The present value can be computed using the general compound-interest formula and setting $P_0 = PV$. Thus:

$$FV_n = PV(1 + i)^n,$$

and

$$PV = \frac{FV_n}{(1 + i)^n}.$$

The present value of an amount to be received in any future period can be computed using this formula.

When receipts (or costs) are expected at future dates, the individual future amounts reflect a particular time dimension. When amounts at different times are to be compared (as above) or aggregated (as discussed below), the individual amounts must be converted to a common time dimension. The future value at some particular future date could be used, but it is generally more

Table 8.5 *Calculation of present values*

Year	Future value	Present value
1	FV_1	$PV_1 = \frac{FV_1}{(1 + i)}$
2	FV_2	$PV_2 = \frac{FV_2}{(1 + i)^2}$
3	FV_3	$PV_3 = \frac{FV_3}{(1 + i)^3}$
4	FV_4	$PV_4 = \frac{FV_4}{(1 + i)^4}$
5	FV_5	$PV_5 = \frac{FV_5}{(1 + i)_5}$
Aggregate		$PV_{1-5} = \frac{FV_1}{(1 + i)} + \frac{FV_2}{(1 + i)^2} + \frac{FV_3}{(1 + i)^3} + \frac{FV_4}{(1 + i)^4} + \frac{FV_5}{(1 + i)^5} = \sum_{j=1}^{5} \frac{FV_j}{(1 + i)^j}$

convenient to express all amounts in present values. For instance, consider amounts to be received at the end of each of the next five years, say FV_1, FV_2, FV_3, FV_4 and FV_5. These amounts cannot be directly aggregated in a meaningful way, but as shown in Table 8.5 their present values can be aggregated. The term $\sum_{j=1}^{5} \frac{FV_j}{(1+i)^j}$ is simply a mathematical shorthand for the sum of the present values of the five future receipts.

So far the illustrations have focused on a series of receipts, but most investment projects involve both outlays and receipts. This does not alter the discussion. An investment project's inflows and outflows will generally arise at various dates. For a meaningful comparison of the costs and benefits, all the inflows and outflows must be expressed in terms of present value. Consider an investment with an outlay of A_0 now, and receipts of $d_1, d_2, \ldots, d_n$ at the end of periods 1 through n. The net present value, V_0, of this project (i.e. the net benefit to be derived from undertaking it) can be expressed as follows:

$$V_0 = -A_0 + \frac{d_1}{(1+i)} + \frac{d_2}{(1+i)^2} + \ldots + \frac{d_n}{(1+i)^n},$$

or equivalently:

$$V_0 = \sum_{j=1}^{n} \frac{d_j}{(1+i)^j} - A_0.$$

The above equations have been discussed in the main text – see equations 8.1 and 8.2.

A similar expression was used in Chapter 5 (equation 5.2) to illustrate the calculation of capital value measured by the present value of prospective receipts, i.e.:

$$K_n = \sum_{j=n+1}^{\infty} \frac{C_j}{(1+i)^{j-n}}.$$

This expression may be written more fully as:

$$K_n = \frac{C_{n+1}}{(1+i)} + \frac{C_{n+2}}{(1+i)^2} + \ldots + \frac{C_{n+k}}{(1+i)^k} + \ldots,$$

which states that the capital value at time n, K_n, is measured by the present value of the net distributions to the owners, $C_{n+1}, C_{n+2}, \ldots, C_{n+k}, \ldots$ for *all* periods into the future from time n.

CHAPTER 9

Planning and Control

An important part of a management accountant's work is the provision of financial information required by managers within the business. Two aspects of this work are: (i) the preparation of financial plans (e.g. budgets); and (ii) the collection of control data to monitor the implementation of such plans. The management accountant undertakes an important co-ordinating and consolidating role in the planning process. Data received from various sources are collated and evaluated within the accounting department. The end product of the process is a plan for some future period. During the course of that period the accounting system should generate information about the effectiveness of the plan's implementation. Reports comparing the actual and expected outcomes may be prepared to highlight those areas where performance varies from the plan. These reports, generally called 'control reports', provide managers with an indication of the areas where special attention is required.

The first stage in the planning process is the formulation of expectations about future events. For instance, estimates may be made of the expected demand for the business' products, the expected actions of competitors, the controls imposed by government agencies, and so on. A manager (probably the sales manager) will then prepare a sales plan to exploit the expected situation. This process may be described as the prediction of the business' environment and the preparation of a plan for operations within that environment. The particular aspects of the environment studied in this book are inflation and relative price changes. It is essential that in the planning process consideration is given to the expected price movements. Predicting price changes can be very difficult. However, some comments on making such predictions are included in this chapter, and

a method of reflecting expected price changes in the planning process is discussed.

Control reports should draw attention to variations from the plan and distinguish between the variances for which the manager is responsible and those which are outside his control. The manager can take action to correct controllable variances, but he will be unable to affect the variances outside his control. None the less, a report of uncontrollable variances may be useful, as it will reflect changes in the environment and may indicate the need to revise the premises on which plans are based. Differences between expected and actual prices frequently fall into the category of uncontrollable variances, but action could be required. For instance, a greater than expected increase in a particular input's price may signal a change to a substitute input.

The experience of U.K. business, particularly in 1973 and 1974, suggests that an adequate system of cash-flow planning is essential during a period of rapidly rising prices. Cash-flow planning is particularly important when profit-planning is based on the historical-cost concept. When prices are rising, financial performance measured by the historical-cost profit figure may appear satisfactory, while current operations are reducing cash resources. Table 9.1 illustrates such a situation. Gama Limited is earning an apparent return on sales of 7 per cent after tax (14 per cent before tax) from operations which are draining cash from the business. This illustration is based on simple assumptions to avoid obscuring the problem. However, such situations do frequently occur in practice. Gama Limited is in a stable (no-growth) situation and the physical quantity of its inventories did not change in 19*X*5. However, the inventory value increased as a result of price changes which occurred during the year. All transactions are assumed to be for cash – accordingly the sales, purchases and other costs represent the money amounts received or paid. All relevant prices increased, but at different rates. The business has four identical machines each with a four-year life and one machine is replaced each year. In 19*X*5 the replacement cost was £150.

A major source of the difference between reported profit and cash flow arises from the use of historical costs (rather than current costs) to measure cost of sales and depreciation in the profit statement. Furthermore, the corporation-tax payment is based on reported profit, not the available cash flow. If Gama had distributed part or

all of the after-tax profit to the shareholders as a cash dividend, its cash deficit would have been even larger. Such factors created serious problems for many U.K. businesses during 1973 and 1974. The problem was eventually acknowledged by the government, and a taxation allowance introduced in November 1974. This removed from taxable profits the inflationary price increases in the inventory valuation.

Such problems, as discussed in earlier chapters, are directly associated with the measurement of profit in an inflationary environment. In this chapter the particular problems of short-term planning will be explored.

Table 9.1 *Gamma Limited – summary of 19X5 operations*

Profit – based on historical costs		
	£	£
Sales		1000
Less cost of sales		
Inventories – 1.1.*X*5	100	
Purchases during 19*X*5	600	
	700	
Less Inventories – 31.12.*X*5	140	560
		440
Other costs	200	
Depreciation	100	300
Profit for year before tax		140
Less corporation tax		70
Profit after tax		£70
(After tax return to sales 7 per cent)		
Cash flow		
	£	£
Sales		1000
Less Payments made		
Purchases	600	
Other costs	200	
Fixed-asset replacement	150	950
Cash generated by operations		50
Less tax payment		70
Cash deficit for year		£(20)

Predicting Price Changes

Predicting price changes is probably the most difficult aspect of financial planning. The sophisticated prediction techniques used in statistics and econometrics are outside the scope of this book. However, an indication will be given of possible sources of data for the management accountant. In many instances the sophisticated techniques will be applied by experts and the information gained made available to accountants. The following discussion is restricted to readily available sources of data within the business and from external sources.

Information from within the business is probably the easiest to obtain and it may provide a useful base for making predictions about specific price increases. Such information will include details of past trends in the prices of goods and services bought and sold. An observation that the price of a particular input has been increasing at 10 per cent p.a. in recent years could suggest that the increase next year may also be 10 per cent. Alternatively, particular prices may have been related directly to inflation in past periods and this may suggest a future price increase in line with expected inflation; but in this case the change in the general level of prices must be predicted also.

Predicting price increases by extrapolating past trends relies on the assumption that 'other things are equal'. A change in the demand for a product or a shift in its supply curve may induce a movement away from the previous trend and render predictions unreliable. However, the examination of past trends may provide a useful starting-point for predictions. Furthermore, in some instances past trends may be the only information available and an extrapolation may be better than ignoring the potential price increases completely. But, if other information is available, it should be used to revise the estimates derived from past trends. For instance, an expected change in the demand for a product should be taken into account in predicting the price for that product. The extent of adjustments for such factors will depend on the nature of the product and its supply and demand characteristics. Making such adjustments will not be easy, but the accuracy of predictions should improve with experience.

A record of price movements in the relevant goods and services over a number of years is essential if predictions are to be based on internally generated data. In addition other relevant information

(such as changes in supply and demand characteristics) must be available to the person(s) responsible for price predictions. However, internal data are not usually the only means of formulating price expectations. Predictions of future prices are often available from external sources. These sources can either be used in place of internally generated data or to corroborate the internal predictions.

Trade associations and professional organisations frequently prepare economic outlooks which may include predictions of price movements. Sometimes suppliers are willing to indicate likely prices for a short period ahead. Also, government agencies and economic research institutions publish economic forecasts, generally with some indication of expected price increases. However, these sources are likely to be less specific in their groupings of commodities than the trade associations and individual suppliers. The external sources in general may also provide other useful data, such as information for modifying price predictions derived by extrapolating past trends.

The general level of prices is determined by macroeconomic forces and, accordingly, its prediction from internal data is unlikely to be successful, as most businesses do not possess a sufficiently wide data base. Predictions of general price-level movements are usually available from economic research institutions and government agencies. However, the predictions of politicians frequently reflect their goals, rather than their expectations, and care must be exercised when using the estimates announced by government officials.

The above suggestions about predicting price changes indicate how the task may be undertaken, but they are not intended to be definitive. It is not possible to be definitive in this area as circumstances will differ from case to case. The subsequent sections of this chapter discuss the inclusion of price predictions in the short-term planning process and it will be assumed that appropriate predictions have been prepared.

Budgets

In most businesses there are carefully defined procedures for the compilation of budgets. The manager of each department is frequently responsible for preparing (possibly with assistance from the accountant) a plan for his department. The accountant acts as a collector of data for the planners and as a co-ordinator of the various

elements of the budget. Even when prices are stable it is essential that each person's role in the budgeting process is precisely defined so that no elements of cost are double-counted or omitted. When prices are rising it is important to make explicit the responsibility for predicting price changes. Without a clear definition of responsibilities a subordinate manager may estimate costs for his department at his expected future prices and pass the information to his superior, who, assuming costs to be estimated at current prices,[1] adjusts for the price increases he anticipates. This may happen more than once. Thus it is essential that an agreed procedure is adopted for adjustments to expected prices. It is suggested that budgets be prepared with two columns – one evaluated at current prices and the other at expected prices. This format will serve to provide information for control purposes (discussed below) and to ensure that there is no confusion about the nature of the data presented.

The following procedure for budget preparation is useful when prices are expected to rise. The first step is to prepare a budget in *current prices*. This step can probably be undertaken at the departmental level by instructing managers to plan their activities and the associated costs for the budget at current prices. These plans will be agreed with superior managers and passed to the accountant. These data will subsequently be adjusted to reflect expected prices. Table 9.2 illustrates a simple budgeted profit statement assuming that only one product is sold. (In practice detailed budgets will be prepared for sales and for each element of cost.) The budgeted quantities and the costing at current prices will be prepared at departmental levels and be consolidated by the accountant. To compute the budgeted quantities an estimate must be made of the level of activity expected in the budget period. This will generally be determined by an interaction of two factors: the productive capacity of the business and the demand for its products. Once the level of activity has been estimated the associated costs and revenues can be considered. In the first instance these costs and revenues should be evaluated at the current prices. This evaluation will produce the budget at current prices, as shown in Table 9.2.

The next step in the budget procedure will be the adjustment for expected price changes. The position of this step in the total procedure will differ from business to business. Its placement should be at the point where the best price predictions can be made. For instance, if departmental managers are able to make reliable pre-

Table 9.2 *Delta Limited – budget for* 19*X*6

	Quantities	At current prices*		At expected prices*	
		£	£	£	£
Sales revenue	10000 units		100000		120000
Variable costs					
Materials					
Y	5000 units	20000		30000	
Z	50000 lbs	20000		24000	
Labour	12000 man-hours	24000		30000	
Variable Overheads		15000		18000	
			79000		102000
Contribution			21000		18000
Fixed overheads			10000		12000
Net profit			£11000		£6000

* Note: the above figures are based on the following prices:

	Current price	*Expected price*
	(£)	(£)
Selling price	10.00 per unit	12.00 per unit (as from 1.1.*X*6)
Material *Y*	4.00 per unit	6.00 per unit (as from 1.1.*X*6)
Material *Z*	0.40 per lb	0.48 per lb (as from 1.1.*X*6)
Labour	2.00 per hour	3.00 per hour (as from 1.7.*X*6)

dictions of prices, they should prepare both costings of their department's budget – at current prices and at expected prices.[2] Both budgets will be passed upward to superiors and then to the accountant for consolidation. However, if departmental managers do not have the necessary information, the adjustment to expected prices should be made elsewhere. For instance, when detailed statistical records of price movements are maintained by a statistical department, its predictions may be given to the accountant who will make the adjustments to the budget. Table 9.2 contains a budget at expected prices, but for the illustration it is not important where the adjustments were made.

The budget at expected prices represents the anticipated outcome from operations in 19*X*6, as they might appear in the profit and loss account, assuming the plan is achieved. The fixed overheads at

current prices comprise a £6000 depreciation charge and £4000 in cash expenses. These cash outlays are expected to increase by 50 per cent during the year and, accordingly, fixed overheads at expected prices are £6000 depreciation and £6000 cash expenses. This assumption becomes more important later, when liquidity planning is discussed.

To control the resources at the disposal of the business the anticipated inflows and outflows should be planned in terms of the expected amounts – i.e. at specific prices. General price-level movements are not normally appropriate for this purpose. However, in instances where it is not possible to directly predict specific price movements, the expected change in the general price level may be used as a proxy.

To summarise, a budget prepared in terms of expected prices is recommended. However, care must be exercised when designing a budget procedure to avoid double-counting. The budgeted profit statement anticipates the financial profit and loss account, assuming the plan is achieved. Furthermore, the inputs and outputs at expected prices can be used for liquidity planning.

Liquidity Planning

As demonstrated earlier, liquidity planning is an important element of financial planning – particularly in a period of inflation. Profits may appear satisfactory while operations are draining financial resources from the business. For liquidity planning it is essential that projections reflect expected prices, as estimates are required of the cash inflows and outflows in the budget period (for this purpose cash may be defined to include bank balances – and, possibly, short-term investments – as well as physical cash holdings). The budgeted cash flow of Delta Limited for 19*X*6 is shown in Table 9.3. (This illustration is based on the information given in Table 9.2. above.) It is assumed that all transactions are for cash and there are no inventories. Two machines are to be replaced during 19*X*6, one in March and the other in September – each at an expected cost of £5000.

Table 9.3 indicates a cash surplus from operations of £2000, but its presentation is unsuitable for effective liquidity planning, as it fails to reveal cash requirements on a monthly or weekly basis. It is possible that a business which generates a substantial cash surplus

Table 9.3 *Delta Limited – budgeted cash flow for* 19*X*6

	£	£
From sales		120000
Less cash outflows		
Material purchases	54000	
Labour costs	30000	
Variable overheads	18000	
Fixed overheads (excl. depreciation)	6000	
Replacement of equipment	10000	
		118000
Cash flow from operations		£2000

over a year as a whole may experience severe cash shortages at certain times during that year. Table 9.4 illustrates the cash budget for Delta Limited on a monthly basis. Some simplifying assumptions have been made, in particular prices are assumed to change at one date rather than gradually. In practice the timing of price changes must be predicted and this is probably even more difficult than estimating the amount of the price increase; but some indications may be available – for instance, wage settlements may be due on particular dates and government regulations may contain restrictions on frequent price increases.

The effect of inflation on monetary items was discussed in Chapter 3, where it was shown that holdings of monetary assets lead to a loss of purchasing power, while purchasing-power gains arise from holdings of monetary liabilities. As cash is a monetary asset, one objective of liquidity planning may be to maintain the smallest cash balance possible. However, this objective must be balanced against the consequences of having insufficient cash; cash must be available to meet obligations as they become payable; creditors must be paid, the payroll must be met, tax liabilities must be discharged, and so on. Failure to make payments at their due dates may have serious consequences – at best a loss of goodwill and at worst bankruptcy. Thus liquidity planning should ensure that cash is available to meet obligations by balancing inflows and outflows and probably by maintaining a minimum cash balance as a reserve for contingencies. It may be possible to meet short-term cash shortages by temporary borrowings, but advance planning makes approaches to financial institutions easier. A banker is likely to respond more favourably to a

Table 9.4 *Delta Limited – cash budget for* 19*X*6 *in* £'000

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
Cash balance brought forward	5.0	6.5	8.0	4.5	6.0	7.5	9.0	9.5	10.0	5.5	6.0	6.5	5
Inflows													
From sales	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	120
	15.0	16.5	18.0	14.5	16.0	17.5	19.0	19.5	20.0	15.5	16.0	16.5	125
Outflows													
Materials	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	54
Labour	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	30
Variable overheads	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	18
Fixed overheads	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	6
Equipment			5.0						5.0				10
	8.5	8.5	13.5	8.5	8.5	8.5	9.5	9.5	14.5	9.5	9.5	9.5	118
Balance carried forward	6.5	8.0	4.5	6.0	7.5	9.0	9.5	10.0	5.5	6.0	6.5	7.0	7

business planning ahead and requesting, in advance, a temporary loan to cover a cash shortage several months ahead, than a business which requests a loan to meet the current week's payroll. Liquidity planning should achieve a balance between the losses resulting from excess cash holdings and the potential problems of cash shortages. In the United Kingdom in 1973 and 1974 stagnation and rising prices (termed 'stagflation' by popular economics journals) caused many businesses to experience cash-flow difficulties and the major task for liquidity planners was to ensure the availability of cash to meet obligations as they became due.

Because of the uncertainties involved in any forward planning, and particularly in liquidity planning, the eventual outcomes are unlikely to accord exactly with the plan. Thus it is important to revise cash-flow budgets regularly – at least every month, and in periods of rapid inflation (say, above 20 per cent p.a.) it may be desirable to prepare weekly revisions. Liquidity plans can be upset by changes in both productive activities and the amount or timing of price increases. Table 9.5 illustrates a revised cash budget for Delta Limited, prepared in March 19*X*6. The cash balance at the end of March is expected to be £4500 as planned, but the expectations for subsequent months have changed. Under threat of strike action, the company agreed to an annual wage settlement of £3.50 per hour, effective from 1 May 19*X*6. As a result of a world-wide shortage of material *Z*, its price is expected to increase to 60 pence per lb on 1 July, increasing material costs to £5000 per month. Variable overheads and equipment costs have also been revised, as shown in Table 9.5. The effect of these revisions is to disclose potential cash shortages from September onwards. The management of Delta Limited must consider the implications of the situation and explore all possible means of reducing costs and/or increasing revenues. No increase in the price of the company's product is anticipated during 19*X*6. In view of the rising costs the company may be able to justify an increase in its selling price. If the cash outflow cannot be prevented the various forms of finance should be investigated, for instance bank loans and overdrafts, trade credits, and so on. In addition consideration may be given to delaying the equipment replacement. However, these are only short-term actions. It may be noted from Table 9.5 that cash outflows (excluding replacement) exceed cash inflows each month from July onwards. Such a position cannot continue for very long and consideration

Table 9.5 *Delta Limited – cash budget for* 19*X*6 *in* £'000 (*revised in March* 19*X*6)

	Jan–Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
Cash balance brought forward	5.0	4.5	6.0	6.0	6.0	5.4	4.8	(1.2)	(1.8)	(2.4)	5.0
Inflows											
From sales	30.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	120.0
	35.0	14.5	16.0	16.0	16.0	15.4	14.8	8.8	8.2	7.6	125.0
Outflows											
Materials	13.5	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0	5.0	57.0
Labour	6.0	2.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	36.0
Variable overheads	4.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	18.6
Fixed overheads	1.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	6.0
Equipment	5.0						5.4				10.4
	30.5	8.5	10.0	10.0	10.6	10.6	16.0	10.6	10.6	10.6	128.0
Balance carried forward	4.5	6.0	6.0	6.0	5.4	4.8	(1.2)	(1.8)	(2.4)	(3.0)	(3.0)

should be given to the long-term viability of the product, and possibly of the business itself. However, short-term cash budgets are of limited use for this purpose, as long-term forecasts are required. Nevertheless, liquidity planning may indicate the need for an examination of long-term prospects.

It may be concluded that liquidity planning is essential for day-to-day operations and it may also be useful in indicating a need for long-term appraisals. There is little to be gained by propping up a business in the short-term by loans, etc. if it is unable to survive in the long run.

Special Decisions

Management accountants are frequently required to evaluate the financial attractiveness of alternative projects. This chapter is concerned with short-term decisions and, accordingly, the discounting procedures discussed in Chapter 8 are unnecessary. However, the principles discussed here can also be applied to long-term decisions. The method of evaluating both short- and long-term projects employs the concepts of 'incremental cost' and 'opportunity cost'. A brief outline of these concepts is given below.[3]

The basic model for short-term decisions is the same as described for long-term decisions in the previous chapter. The objective of a business is assumed to be the maximisation of the surplus available to the owners (i.e. the net present value). For short-term decisions the problems associated with the timing of cash flows can be ignored and potential projects evaluated by estimating the cash-flow surplus expected to arise from their acceptance. These estimates may be prepared by considering the incremental effect of acceptance on the total cash flow of the business, assuming that if a project is rejected the business will use the available resources for the best *alternative* opportunity. Thus projects are evaluated against the best possible alternatives for the business. If a potential project's cash-flow surplus, evaluated in this way, is positive the project should be accepted.

By their very nature, short-term decisions are unlikely to be greatly affected by changing prices. Such decisions will normally involve projects having immediate effect. Accordingly the appropriate prices for evaluating the available alternatives will be the current prices, or the prices expected in the very near future. Nevertheless, any expected price changes should be reflected in the evaluation process.

An illustration of this process is given in Table 9.6 and explained below.

Table 9.6 *Evaluation of special order*

		£
Materials		
A 100 lbs at £5 lb		500
B 200 lbs at £1 lb		200
Labour		
Skilled 75 hours at £3 per hour		225
Unskilled 50 hours at £1.50 per hour		75
Overheads		
All fixed		
Total incremental costs		£1000
Evaluation		
Proceeds of sale	£1200	
Incremental costs	1000	
Surplus	£200	

A special order is received for a product not normally produced, but the necessary facilities and expertise are available. The customer is prepared to pay £1200 and the accountant is asked to evaluate the order. Materials and labour will be required as follows:

(i) *Material A: 100 lbs.* An inventory of 200 lbs of this material is available. It was bought at £6 per lb for an order which was subsequently cancelled. No other use for the material within the business is foreseen. Although its current replacement price is £8 per lb, disposal of the inventory is likely to yield only £5 per lb.

(ii) *Material B: 200 lbs.* This material is in frequent use, and an inventory of 400 lbs, recently purchased at 80 pence per lb, is held. However, it is expected that the price will soon increase by 25 per cent (i.e. to £1 per lb), and orders placed immediately will be subject to the new price.

(iii) *Skilled labour: 75 man-hours.* The skilled labour is currently paid a basic rate of £1.60 per hour, but owing to a shortage of this labour much overtime working is necessary. The overtime rate is 150 per cent of the basic rate.

(iv) *Unskilled labour: 50 man-hours.* Unskilled labour is hired as required at a cost of £1.20 per hour.

Wage negotiations are in progress for both types of labour and an across-the-board settlement of 25 per cent seems likely. Work on the special order will be undertaken after the new wage rates become effective.

The incremental costs of producing this special order are computed in Table 9.6. The cash surplus from accepting the order is evaluated at expected prices. As material *A* is not normally used in the business, the best alternative use of the inventory is resale at £5. It may be assumed that if the special order is rejected, the available 200 lbs will be sold at £5 per lb. Thus the effect of using 100 lbs to produce the order will be to reduce the proceeds from sale by £500. As material *B* is in common use, if part of the inventory is taken for the special order it will be replaced in the normal course of business at the prevailing price of £1. Hence £1 is the opportunity cost of this material.

Producing the special order will increase the skilled labour's total work-load and the increment must increase total wages paid at overtime rates; 75 hours additional overtime will be worked at the expected overtime rate of £3 (150 per cent of £1.60 + 25 per cent). As unskilled labour can be employed as required, 50 man-hours will be hired at the *new* wage rate of £1.50 (£1.20 + 25 per cent).

The other costs of the business are assumed to be unaffected by the order, and the appropriate incremental costs are zero. Table 9.6 indicates a cash surplus from the order of £200 and, accordingly, the order should be fulfilled.

Short-term accept/reject decisions are not greatly complicated by price changes. None the less, it should be noted that the specific prices predicted for the project were used in the evaluation. As indicated above, the prediction task is not easy, but some of the initial difficulties may be overcome by experience. All planning processes should be monitored and the outcome compared to the prediction. Apart from the control aspect, which is considered below, such comparisons will assist the individual responsible for plans (and predictions) to learn from past errors.

Control Process

The control mechanism afforded by an accounting system can be very important – especially in large businesses where there is considerable delegation of responsibilities. The senior managers (and

directors) will be able to monitor their subordinates' execution of delegated responsibilities. Furthermore, the subordinates can be kept informed of their performance relative to their goals. An accounting system has many attractions as a control device – these range from the motivation of managers to the indication of needs for corrective action.

Control reports are normally prepared by comparing actual and budgeted performance. These reports highlight the *variances* between actual and budget, using a technique generally termed 'variance analysis'.[4] In a period of rising prices no special problems would arise in variance analysis if the expected prices used in the budget were an accurate prediction of actual prices. The budget would include the new prices, and variances would not be created by price changes. However, accurate predictions are not generally possible in an uncertain world, and hence it is important to isolate the variances which result from price changes and other factors beyond the manager's control. A manager should not be held responsible for variances he cannot control. Nevertheless, all variances should be reported, including the price-change variances, as these may assist the person responsible for price predictions to revise his expectations and possibly improve subsequent predictions. In addition these variances may suggest a change in operations, such as the substitution of a less expensive item.

The budget procedure recommended above has particular advantages for variance analysis in a period when prices change. The completed budget statements will contain separate columns for current and expected prices. The budget at expected prices can be used for liquidity planning and for co-ordinating the activities of the business. The difference between the current-price budget and the expected-price budget arises from the prices used to evaluate the financial consequences of the planned activities. Both budgets contain identical activities and the same quantities of inputs and outputs.

When calculating variances the financial effects of unexpected price increases may be isolated by revising the budget at expected prices to reflect the unexpected price movements. Then, comparisons between actual performance and the (revised) budget will indicate the variances as though accurate predictions had been made. The amount of the budget revision will indicate the variance due to unexpected price changes. Although the revised budget may be computed by adjusting the original budget at expected prices for

the unexpected price changes, an alternative, and possibly simpler method is to adjust the budget in current prices for the actual price movements.

When revising a budget the measure of actual price movements must be carefully selected to reflect the change in the cost of the commodity, given neutral buying policies. In other words, special savings from good buying or the additional costs of bad buying should be excluded from the budget revision and give rise to variances when actual costs are compared with the revised budget. The use of specific price indices to revise the budget at current prices probably provides the best means of excluding the effects of buying policies from the budget revision. An industry-wide index for a particular commodity will indicate the average change in the price to the industry as a whole. A difference between the movement in the index and the price to a business will generally arise from the buying policy of that business.

An illustration of the proposed method of variance analysis is given in Table 9.7. Material costs are presented as an example; however, the same principles may be applied to other elements of cost. The budget information for the illustration is contained in the

Table 9.7 *Calculation of variances*

		Current price		Expected price	
Budget January 19*X*6	quantity	unit	total	unit	total
Material *X*	3000 lbs	£5	15000	£6	18000
Revised budget	quantity		price		amount
Material *X*	3000 lbs		£7*		£21000

Effect of unexpected price increase = £21000 − 18000 = £3000 (additional costs)

Variances	quantity	price	amount
Actual costs	3100 lbs	£7.50	£23250
Revised budget	3000 lbs	£7.00	£21000
Variance	100 lbs	£0.50	£2250

Made up as follows:		
Price variance: £0.50 × 3100 lbs	(adverse)	£1550
Quantity variance: 100 lbs × £7	(adverse)	700
Total material cost variance	(adverse)	£2250

* £5 + 40 per cent increase in specific price index.

table. During January 19*X*6 the specific price index for Material *X* increased from 100 to 140. However, due to poor negotiations £7.50 per lb was paid for the 3100 lbs bought and used during the month. The first step in the variance analysis is to revise the budget for the specific price increase. The effect of the unexpected price change can be computed by adjusting the current price budget for the 40 per cent price increase and comparing the revised budget with the budget at expected prices. The price and quantity variances can then be computed in the normal way, by comparing the revised budget and actual costs.

The difference between the proposed method and the traditional calculation of variances is the isolation of unexpected price changes, which has the effect of highlighting good and bad buying policies, and the evaluation of quantity variances at the new price level. This distinction is shown diagrammatically in Figure 9.1. The area of the

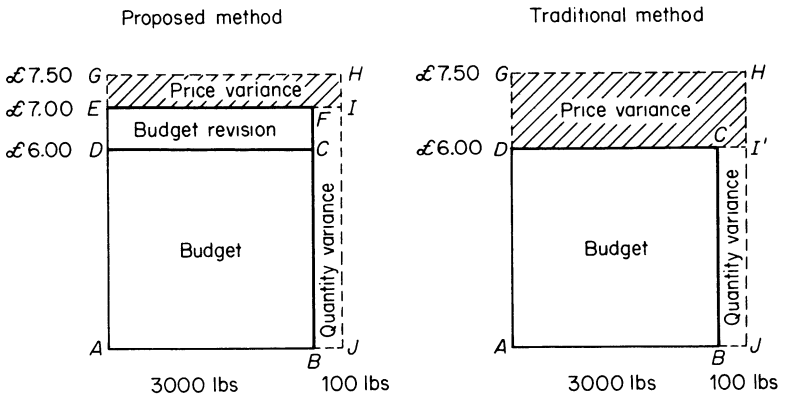

Figure 9.1 *Difference between proposed and traditional variance calculations*

rectangle, *ABCD*, represents the budgeted cost; the expected price, £6, multiplied by the budgeted quantity, 3000 lbs, equals £18,000. In the proposed method the budget is revised to the area *ABFE*, to reflect the new price level. The variances are then calculated by comparing this revised budget, *ABFE*, with the actual cost represented by *AJHG*. The price variance is *EIHG* and the quantity variance is *BJIF*. In the traditional method the variances are calculated by directly comparing the original budget *ABCD* and the actual costs *AJHG*. Hence the traditional price variance is *DI'HG*

and the traditional quantity variance, *BJI'C*. It may be observed that the two quantity variances differ. The material quantity variance is evaluated at the expected price of £6 in the traditional method, whereas in the proposed method the same quantity is evaluated at the new price level of £7.

This illustration reflects the major characteristic of the proposed method, namely that variances should be evaluated in terms of the current prices at the time of the evaluation. Although the illustration was simple, the principles involved can be applied to the more complex situations found in practice, particularly if the business' information system monitors price changes, and the budget procedure recommended earlier is followed.

Concluding Remarks

The implications of inflation for management accounting were discussed in this and the preceding chapter. It was demonstrated that the expected prices applicable to planned activities should generally be incorporated into management information; but it was accepted that it is not always possible to predict changes in specific prices and that some proxy (such as the expected change in the general price level) may be used.

The main focus of the inflation-accounting debate which has taken place in recent years has been the preparation of financial information to be included in annual financial statements. This debate has tended to overshadow discussions of the effect of inflation on accounting information prepared for managers within the business. None the less, management accountants have had to cope with the problems of accounting in an inflationary environment.

The report of the Sandilands Committee, which represented a major step forward in the area of annual financial reporting, also has important implications for management accounting. However, the role of current costs in management accounting must not be misunderstood. The current-cost profit and loss account and balance-sheet report the financial activities during the period and the financial position at the period end in terms of the period's or period end's current costs. This method of financial reporting will provide useful information to management, as it indicates the current value to the business of its available resources. None the less, when financial plans are prepared it will be necessary to form expectations

about future prices (i.e. the current costs at the date the activities are expected to take place).

In conclusion it may be stated that the use of current costs in annual financial reporting and expected cost (the current costs at future dates) in financial planning together will improve accounting in an inflationary environment.

Notes and References

Chapter 2

1. L. Middleditch, 'Should Accounts Reflect the Changing Value of the Dollar?', *Journal of Accountancy* (February 1918) pp. 114–20.
2. Ibid. p. 120.
3. W. A. Paton, 'Depreciation, Appreciation and Productive Capacity', *Journal of Accountancy* (July 1920) p. 2.
4. H. W. Sweeney, *Stabilized Accounting* (New York: Harper, 1936).
5. See Supplementary Statement No. 2, 'Price Level Changes and Financial Statements', *Accounting and Reporting Standards for Corporate Financial Statements and Preceeding Statements and Supplements* (American Accounting Association, 1957) p. 26.
6. American Institute of Certified Public Accountants (Accounting Research Division), 'Reporting the Financial Effects of Price Level Changes', *Accounting Research Study No. 6* (New York, 1963) p. 1.
7. Ibid.
8. Accounting Principles Board, 'Financial Statements Restated for General Price Level Changes', *Statement No. 3* (New York: American Institute of Certified Public Accountants, 1969).
9. *Accounting for Stewardship in a Period of Inflation* (Research Foundation of the Institute of Chartered Accountants in England and Wales, 1968).
10. Accounting Standards Steering Committee, *Inflation and Accounts* – Discussion Paper and Fact Sheet (1971).
11. Accounting Standards Steering Committee, 'Accounting for Changes in the Purchasing Power of Money', *Exposure Draft No. 8* (Institute of Chartered Accountants in England and Wales, 17 January 1973).

12. Report of Inflation Accounting Committee under Chairmanship of F. E. P. Sandilands, *Inflation Accounting*, Cmnd. 6225 (London: H.M.S.O., September 1975).

13. Accounting Standards Steering Committee, 'Accounting for Changes in the Purchasing Power of Money', *Provisional Statement of Standard Accounting Pratice No. 7* (Institute of Chartered Accountants in England and Wales, 14 May 1974).

14. Accounting Standards Committee, 'Current Cost Accounting', *Exposure Draft No. 18* (30 November 1976).

15. Financial Accounting Standards Board, 'Financial Reporting in Units of General Purchasing Power', *Proposed Statement of Financial Accounting Standards* (31 December 1974).

Chapter 3

1. As will be explained below, individual transactions are not normally restated. The restatement process is generally applied on an average basis.

2. The term *current* purchasing power accounting used by the A.S.S.C. in the United Kingdom indicates that the purchasing power of money at the balance-sheet date is used. This chapter is titled '*constant* purchasing power accounting' to provide more generality – the purchasing power at any date may be used.

3. Paragraph 28: items which are not monetary items are called non-monetary items, with the exception of issued share capital, which is neither a monetary nor a non-monetary item.

4. Accounting Principles Board, *Statement No. 3.* The abbreviation 'APB 3' is normally used.

5. Financial Accounting Standards Board, *Proposed Statement of Financial Accounting Standards.*

6. Australian Accounting Standards Committee, 'A Method of Accounting for Changes in the Purchasing Power of Money', *Preliminary Exposure Draft* (December 1974).

7. In particular, paras 1–4.

Chapter 4

1. See A. Hope, 'The Availability of Data for Inflation Accounting', *Accountancy* (October 1973) pp. 10–13.

2. *Statement of Standard Accounting Practice No. 7*, para. 16.

3. Report of Inflation Accounting Committee, *Inflation Accounting*, para. 435, p. 130.

4. R. C. Jones, 'The Effect of Inflation on Capital and Profits, The Record of Nine Steel Companies', *Journal of Accountancy* (January 1949).

5. P. Rosenfield, 'Accounting for Inflation – A Field Test', *Journal of Accountancy* (June 1969) pp. 45–50.

6. J. Pearcy, 'Inflation and U.K. Published Accounts', *Journal UEC* (October 1970) pp. 196–203.

7. R. S. Cutler and C. A. Westwick, 'The Impact of Inflation Accounting on the Stock Exchange', *Accountancy* (March 1973) pp. 15–24.

8. This author is grateful to the Accountancy Staff of the Monopolies and Mergers Commission for permission to reproduce the figures contained in Table 4.8.

9. M. F. Morely, *The Fiscal Implications of Inflation Accounting* (Institute of Fiscal Studies/Chartered Accountants Trust for Education and Research, 1974).

10. Report of the Inflation Accounting Committee, *Inflation Accounting*, p. 136.

Chapter 5

1. Report of the Inflation Accounting Committee, *Inflation Accounting*, chs 12–13.

2. A. C. Kelly, 'Can Corporate Income be Scientifically Ascertained?', *Accounting Review* (July 1951) p. 293.

3. The distribution of a surplus to owners may take place period by period, e.g. dividends, or at the end of the business' operations, i.e. on liquidation.

4. E. O. Edwards and P. W. Bell, *The Theory and Measurement of Business Income* (University of California Press, 1961) pp. 74–8.

5. This should not be confused with the valuation of ultimate forms at current selling prices. In that case the selling prices are those applicable at the present time, whereas for expected values the estimated future selling prices are used.

6. J. R. Hicks, *Value and Capital* (Oxford: Clarendon Press, 1946) p. 172.

7. That is, distributions of capital or dividends less any new capital introduced.

8. The symbols used to express the discounting process are explained in the appendix to Chapter 8.

9. Edwards and Bell, *Theory and Measurement of Business Income.*

10. K. MacNeal, *Truth in Accounting* (University of Pennsylvania Press/Oxford University Press, 1939).

11. R. J. Chambers, *Accounting, Evaluation and Economic Behavior* (Englewood Cliffs, N.J.: Prentice-Hall, 1966).

12. R. R. Sterling, *Theory of the Measurement of Enterprise Income* (University of Kansas Press, 1970).

13. Edwards and Bell, *Theory and Measurement of Business Income*, p. 97.

14. J. C. Bonbright, *The Valuation of Property* (New York: McGraw-Hill, 1937).

15. For instance, see D. Solomons, 'Economic and Accounting Concepts of Cost and Value', in *Modern Accounting Theory*, ed. M. Backer (Englewood Cliffs, N.J.: Prentice-Hall, 1966) pp. 117–40.

16. This particular approach was discussed by Solomons, ibid. and is reproduced in detail here because of its fundamental importance.

17. If replacement is subject to constraints (and resources must be diverted from other profitable projects), the opportunity cost of replacement should be included in *RC.*

18. If the business is experiencing a shortage of finance and is unable to borrow sufficient funds to meet all its needs, the benefit derived from selling an asset may exceed the money amount of the proceeds received, as such proceeds will be available to finance profitable projects. Thus *NRV* should be defined as the present value of the best alternative use of the sales proceeds. This definition implicitly includes the money amount of the sales proceeds as a lower limit of *NRV.*

19. For instance, see R. H. Parker and G. C. Harcourt, *Readings in the Concept and Measurement of Income* (Cambridge University Press, 1969) p. 19.

20. Report of Inflation Accounting Committee, *Inflation Accounting*, p. 176.

21. See T. A. Lee, *Income Determination: Theory and Practice* (London: Nelson, 1974) ch. 6.

22. Edwards and Bell, *Theory and Measurement of Business Income*, ch. 3.

23. Figure 5.1 is adapted from Edwards and Bell, ibid. figures 6 and 7.

24. For instance, Edwards and Bell, ibid.; and L. Revsine, *Replacement Cost Accounting* (Englewood Cliffs, N.J.: Prentice-Hall, 1973).

25. For a summary of this literature, see D. F. Drake and N. Dopuch, 'On the Case for Dichotomising Income', *Journal of Accounting Research* (Autumn 1965) p. 194.

26. For instance, see Revsine, *Replacement Cost Accounting.*

27. For a further discussion of these and other concepts of capital maintenance, see R. S. Gynther, 'Capital Maintenance, Price Changes and Profit Determination', *Accounting Review* (October 1970) pp. 712–30.

28. However, this does not imply that the valuation of assets at their value to the business is only appropriate with this concept of capital maintenance. As will be shown below that method of asset valuation may be used with other capital-maintenance concepts.

29. A similar table was devised by R. S. Gynther, 'Accounting for Changing Prices: Some Recent Thinking, Recommendations and Practice', *Chartered Accountant in Australia* (December 1971).

30. Y. Ijiri, *The Foundations of Accounting Measurement* (Englewood Cliffs, N.J.: Prentice-Hall, 1967).

31. Financial Accounting Standards Board, 'Financial Reporting in Units of General Purchasing Power', *Proposed Statement of Financial Accounting Standards.*

32. Accounting Standards Steering Committee, *Provisional Statement of Standard Accounting Practice No. 7.*

33. Revsine, *Replacement Cost Accounting*, but it should be noted that, as Revsine abstracted from inflation in his analysis, it is not completely clear that he intended us to suppose he favours the money-value concept of capital maintenance.

34. Committee to Prepare a Statement of Basic Accounting Theory, *A Statement of Basic Accounting Theory* (New York: American Accounting Association, 1966).

35. Edwards and Bell, *Theory and Measurement of Business Income.*

36. R. L. Mathews, 'Income, Price Changes and the Valuation Controversy in Accounting', *Accounting Review* (1968) pp. 509–16.

37. R. S. Gynther, *Accounting for Price-Level Changes: Theory and Practice* (Oxford: Pergamon Press, 1966).

38. Chambers, *Accounting, Evolution and Economic Behavior.*

39. Sterling, *Theory of the Measurement of Enterprise Income.*

40. R. W. Scapens, 'The Treatment of Changing Price Levels in

External Accounting Reports', unpublished Master's Degree Thesis, University of Manchester (1972).

41. Inflation Accounting Committee, *Inflation Accounting.*

42. Accounting Standards Group, 'Current Cost Accounting', *Exposure Draft No. 18.*

Chapter 6

1. For an explanation of the Philips system, see G. Holmes, 'Replacement Value Accounting', *Accountancy* (March 1972) pp. 4–8; and A. Goudeket, 'An Application of Replacement Value Theory', *Journal of Accountancy* (July 1960) pp. 37–47.

2. Mathews, 'Income, Price Changes and the Valuation Controversy in Accounting.'

3. Gynther, *Accounting for Price-Level Changes: Theory and Practice.*

4. Edwards and Bell, *Theory and Measurement of Business Income.*

5. Report of the Inflation Accounting Committee, *Inflation Accounting*, para. 552.

6. Ibid. para. 524.

7. Ibid. para. 535.

8. The Consultative Committee of Accountancy Bodies, *Initial Reactions to the Report of the Inflation Accounting Committee* (30 October 1975) para. c; reprinted in *Accountancy* (December 1975) pp. 92–6.

9. Ibid.

10. The Accounting Standards Committee, 'Current Cost Accounting', *Exposure Draft No. 18*, p. 16.

11. Ibid. pp. 1–2.

12. Ibid. appendix 2, p. 83.

13. Ibid. p. 31.

14. For instance, index numbers published in Central Statistical Office, *Price Index Numbers for Current Cost Accounting* (London, H.M.S.O.).

15. As discussed earlier, Gynther, *Accounting for Price-Level Changes*, argued in favour of such a transfer to a capital-maintenance reserve in order to maintain the operating capacity of the business.

16. *Exposure Draft No. 18*, p. 16.

Chapter 7

1. Institute of Chartered Accountants in England and Wales, 'Accountants' Liability to Third Parties – The Hedley Byrne

Decision', *Recommendation V. 8* (issued December 1965 as *Recommendation S. 8*), para. 8b.

2. Accounting Standards Steering Committee, *Provisional Statement of Standard Accounting Practice No. 7*, para. 3.

3. Accounting Principles Board, 'Financial Statements Restated for General Price Level Changes', *Statement No. 3*, para. 28.

4. Institute of Chartered Accountants in England and Wales, *Accounting for Stewardship in a Period of Inflation* (London: Gee & Co. Ltd, 1968).

5. For a discussion of the value of information, see Roger Mace, *Management Information and the Computer* (London: Accountancy Age, 1974) ch. 7.

6. MacNeal, *Truth in Accounting.*

7. T. A. Lee, *Income and Value Determination: Theory and Practice* (London: Nelson, 1973) ch. 6.

8. R. S. Gynther, 'Accounting Concepts and Behavioural Hypotheses', *Accounting Review* (April 1967) pp. 274–90.

9. For the results of a survey of accountants' attitudes towards the objectives of financial reporting, see Bryan Carsberg, Tony Hope and R. W. Scapens, 'The Objectives of Published Accounting Reports', *Accounting and Business Research* (Summer 1974) pp. 162–173.

10. Accounting Standard Steering Committee, *The Corporate Report* (Institute of Chartered Accountants in England and Wales, 1975).

11. Study Group on the Objectives of Financial Statements, *Objectives of Financial Statements* (known as the Trueblood Report) (American Institute of Certified Public Accountants, October 1973).

12. Institute of Chartered Accountants in England and Wales, 'Accounting in Relation to Changes in the Purchasing Power of Money', *Recommendation N. 15* (May 1952) para. 1.

13. American Accounting Association, *A Statement of Basic Accounting Theory* (New York, 1966) p. 7.

14. M. Moonitz, 'The Basic Postulates of Accounting', *Accounting Research Study No. 1* (New York: American Institute of Certified Public Accountants, 1961) ch. 2.

15. H. W. Bevis, 'Riding Hard on Accounting Standards', *Accounting Review* (January 1961) p. 9.

16. Moonitz, 'The Basic Postulates of Accounting', p. 4.

17. *The Corporate Report*, p. 28.

18. Trueblood Report, p. 13.

19. The following list was suggested by Carsberg, Hope and Scapens, 'The Objectives of Published Accounting Reports', p. 166.

20. D. E. Stone, 'The Objectives of Financial Reporting in the Annual Report', *Accounting Review* (April 1967) p. 333.

21. For instance, see J. C. Van Horne, *Financial Management and Policy*, 3rd edn (Englewood Cliffs, N.J.: Prentice-Hall, 1975) particularly pt I.

22. Revsine, *Replacement Cost Accounting*.

23. Ibid. pp. 99–100.

24. The exposure draft on current-cost accounting issued by the Accounting Standards Committee, *Exposure Draft No. 18*, includes a further adjustment which is designed to show the effect of purchasing-power changes on these total (money) gains.

25. Report of the Inflation Accounting Committee, *Inflation Accounting*, pp. 42–55.

26. Ibid. para. 154, p. 44.

27. Ibid. para. 166, p. 47.

28. As proposed by the Accounting Standards Committee in *Exposure Draft No. 18*.

Chapter 8

1. For this chapter a familiarity with the basic principles of discounting is assumed. A brief explanation for the reader not familiar with these principles is given in the appendix. For a more comprehensive discussion of the D.C.F. techniques of project appraisal, see B. V. Carsberg, *Analysis for Investment Decision* (London: Accountancy Age, 1974).

2. H. Bierman, Jr and S. Smidt, *The Capital Budgeting Decision*, 2nd edn (New York: Collier-Macmillan, 1969) p. 29.

3. This rule must be modified when conditions of capital rationing exist. However, such a modification is outside the scope of this book.

4. For a discussion of these theoretical reasons, see Carsberg, *Analysis for Investment Decision*, ch. 5.

5. There is an extensive literature on the subject of cost of capital. For a discussion of the principles involved, see ibid. In this chapter it will be assumed that it is possible to compute the effective monetary cost of capital of the business.

6. For instance, see Robert Mundell, 'Inflation and Real Interest', *Journal of Political Economy* (June 1963) pp. 280–3; and for empirical support, see R. Roll, 'Interest Rates on Monetary Assets and Commodity Price Index Changes', *Journal of Finance* (May 1972) pp. 251–77.

7. Such practices were reported in an empirical study by B. V. Carsberg and A. Hope, *Business Investment under Inflation: Theory and Practice* (Institute of Chartered Accountants in England and Wales, 1976).

Chapter 9

1. As defined in Chapter 8, current prices are those prevailing at the time the evaluation takes place – in this case the time when the budget is prepared.

2. The accounting staff will probably be on hand to assist the departmental managers in this task. Alternatively, the managers may prepare quantity estimates for their departments and predict the future prices. The accounting staff will then prepare the costings at current prices and at expected prices.

3. A reader who is unfamiliar with these concepts may prefer a broader description – see a decision-making textbook, such as J. A. Arnold, *Pricing and Output Decisions* (London: Accountancy Age, 1973).

4. For a detailed description of variance analysis, see C. T. Horngren, *Cost Accounting: A Managerial Emphasis*, 3rd edn (Englewood Cliffs, N.J.: Prentice-Hall, 1972) chs 7, 8 and 9.

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