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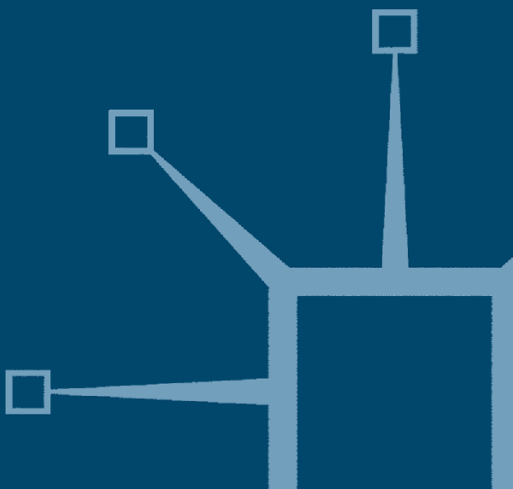
Margins of Error in Accounting

D.R. Myddelton



Margins of Error in Accounting

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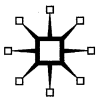

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Acronyms

AEI	Associated Electrical Industries
AGM	Annual General Meeting
AICPA	American Institute of Certified Public Accountants
AIG	American International Group
AMPS	Auction Market Preferred Stock
ASB	Accounting Standards Board
ASC	Accounting Standards Committee
ASSC	Accounting Standards Steering Committee
CA	Current Assets
CAPM	Capital Asset Pricing Model
CCA	Current Cost Accounting
CED	Consumer Expenditure Deflator
CEGB	Central Electricity Generating Board
CL	Current Liabilities
CPA	Certified Public Accountant [US]
CPI	Consumer Prices Index
CPP	Constant Purchasing Power (accounting)
CV	Current Value
DCF	Discounted Cash Flow
EBIT	Earnings Before Interest and Taxes
EBITDA	EBIT before Depreciation and Amortisation
E&OE	Errors and Omissions Excepted
EOY	End of Year
EPS	Earnings Per Share
ERPM	East Rand Proprietary Mines
EVA	Economic Value Added
EY	Ernst & Young
FASB	Financial Accounting Standards Board [US]
FIFO	First In First Out
FRS	Financial Reporting Standard
GAAP	Generally Accepted Accounting Principles [US]
GDP	Gross Domestic Product
GE	General Electric [US]
GEC	The General Electric Company Limited [UK]
GKN	Guest Keen and Nettlefolds
GM	General Motors [US]

GNP	Gross National Product
GSK	GlaxoSmithKline
HC	Historical Cost
HICP	Harmonised Index of Consumer Prices
HMC	Historical Money Cost
IAS	International Accounting Standard
IASB	International Accounting Standards Board
IASC	International Accounting Standards Committee
ICAEW	Institute of Chartered Accountants in England and Wales
IFRS	International Financial Reporting Standards
ISA	International Standard on Auditing
LIFO	Last In First Out [US]
MBO	Management Buy Out
NBV	Net Book Value
NMA	Net Monetary Assets
OFSTED	OFfice for Standards in EDucation
P&L	Profit & Loss (account)
PAD	Profit After Depreciation
PBD	Profit Before Depreciation
PBIT	Profit Before Interest and Tax
P/E	Price/Earnings (ratio)
PFI	Private Finance Initiative
PSBR	Public Sector Borrowing Requirement
RC	Replacement Cost
R&D	Research & Development
RPI	Retail Prices Index
RV	Realisable Value
SEC	Securities & Exchange Commission [US]
S&P	Standard & Poor's
SSAP	Statement of Standard Accounting Practice
STRGL	STatement of Realised Gains and Losses
SYD	Sum of the Years' Digits [depreciation]
TFE	Total Final Expenditure

Preface

When I was an articled clerk half a century ago I remember being amused by the letters 'E&OE' which used to appear on invoices, standing for 'Errors and Omissions Excepted'. They are a down-to-earth reminder that numbers in business are not always correct. Accounts themselves can hardly ever be more than rough-and-ready interim estimates of a company's financial progress. It was some years before I came to realise that they didn't need to be anything more.

Accounting is an art not a science; and over-ambitious standard-setters, especially in the English-speaking world, have sometimes raised expectations in recent years beyond what is possible. Too often ignoring what the users (and preparers) of accounts want, they remind us of Douglas Jay's arrogant claim: 'The gentleman in Whitehall really does know better what is good for people than the people know themselves.'

The inspiration for this book was *On The Accuracy of Economic Observations* (1962) by Oskar Morgenstern, a distinguished US-based Austrian economist. I came across it early in my career, when I was already concerned about the impact of inflation on accounts expressed in terms of money.

During my teaching career the pound lost well over 90 per cent of its purchasing power – the most devastating currency debasement in sterling's thousand-year history. It had an extremely serious effect on accounts using money as the unit of account. Partly due to government interference, leaders of the British accounting profession failed to effect an adequate solution.

I have tried to quantify margins of error, usually in the form of percentages where possible, though this is often difficult. Real-life examples are given throughout the book. Their dates have no special significance: they just happen to represent the occasion when I was writing the particular passage.

Chapter 1 discusses the accounting background and what is meant by 'material' and by 'margins of error'.

The core of the book is Chapters 2 to 6, which deal with the main reasons why accounts and accounting measurements are often likely to be subject to a significant margin of error.

Chapter 2 identifies the many inevitable kinds of error arising from the 'interim-ness' of annual accounts in the ongoing life of most businesses.

Chapter 3 discusses the use of various kinds of estimated current values (rather than actual historical costs), and the errors likely to arise therefrom.

Chapter 4 describes the significant impact of currency debasement on accounts expressed in terms of money, even when rates of inflation appear to be fairly 'low'.

Chapter 5 outlines the different approaches taken by accountants and economists and the resulting distinction between accounting profit and 'economic income'.

Chapter 6 deals with 'creative accounting': what pressures lead to it and what it entails.

Each of these chapters is more or less self-sufficient, but they are probably best read in the order in which they appear. To a small extent there may be some overlap between them.

The book focuses mainly on financial accounting, on published company accounts, though there is some discussion of the accounts of private companies and other entities, of government financial reporting and of internal management accounting.

Chapters 7 and 8 also refer to statistics more widely; Chapter 7 discussing 'spurious accuracy' and Chapter 8 describing many aspects of life where we are content to tolerate less-than-perfect 'accuracy'.

Is this book intended for experts or for 'non-experts'? The answer is both. It is for everybody interested in company accounts or in the results that analysts and others discuss. No doubt experts will be able to skip passages where I have spelt out the basics in some detail; but there may be other aspects of accounting where even they have something to learn.

With permission from the respective publishers, I have drawn on parts of earlier books of mine, sometimes more or less word for word. Several chapters use material from *Unshackling Accountants*; with the agreement of my co-author Professor Walter Reid, Chapters 2 and 3 incorporate passages from our textbook *The Meaning of Company Accounts*; Chapter 4 includes the gist of discussions about inflation and the unit of account from *On A Cloth Untrue*; and the Lucas Industries plc example of inflation accounting adjustments in Chapter 4 comes from my chapter in Ward and Grundy's *Strategic Business Finance*.

I am most grateful to the following for agreeing to comment on an interim draft of the text: Professor Adrian Buckley, Henry Gold, Ralph Hulbert, Malcolm Raiser and my brothers Roger and Alexander Myddelton. In various ways they all helped to improve the final version of this book. I should make it clear, however, as some of them did, that they do not agree with everything I have written.

Postscript

The worldwide financial crisis in 2008 had many causes, including reckless government monetary policies and defective regulation. The use of fair value and mark-to-market accounting may also have been partly to blame.

Some bank balance sheets may have overstated assets by failing to make proper provision for losses on so-called toxic securities. On the other hand, for the purposes of meeting capital adequacy rules, some solvent banks were required to mark certain financial instruments to market. It seems this may sometimes have been at unrealistically *low* levels, based on 'market prices' in distressed and abnormal conditions. In both cases the margins of error seem to have been extremely large.

The fair value rules in IAS39 formed the basis for the Basel 2 capital requirements for banks. Pressure from the European Union led to changes to allow more flexibility, thus coming into line with US GAAP which had been amended earlier. Of course this was locking the stable door after the horses had bolted. One important lesson is that it's not much use people following the rules and ticking boxes if the rules themselves are inappropriate. Another is that *competition* between standard-setting bodies can be healthy.

1
Introduction

Quis numerare incipit errare incipit
[Whoever begins to count begins to make mistakes]

Accounting numbers can be deceptive. They may seem to be precise – after all, balance sheets always balance – but actually they are not. An eminent Anglo-American accountant, George O. May, observed: 'I think we are not sufficiently conscious of the margins of error that there are in existing accounts.' (Study Group, 1973, p. 216)

This opening chapter describes how accounting rules have developed from requiring extensive disclosure to detailed standards on measurement. They now relate mainly to inputs – obeying imposed 'standards' – rather than to outputs – giving 'a true and fair view'.

The chapter also discusses whether too much is expected of accounts, leading to an 'expectations gap'; what a 'margin of error' means and to what extent it can be quantified; and the main causes and types of 'error' in accounts.

1. Accounting rules

This book on margins of error in accounting covers mainly questions of measurement. For many years the formal accounting rules in various UK Companies Acts covered mostly disclosure (meaning *what* accounts show); only a few related to presentation (meaning *how*); and hardly any to measurement of assets and liabilities, income and expenses. There is evidence to suggest that institutional investors are more concerned with levels of disclosure than about underlying differences in recognition and measurement (Barker, 2001, p. 29).

The book concentrates on the accounts of public companies, but much of the discussion applies equally to unlisted small or medium-sized enterprises or to other entities such as partnerships, charities, clubs, government departments and so on. The main focus is on external 'financial' accounting, with limited coverage of internal 'management' accounting.

Rules on presentation greatly increased with the European Commission's Fourth Directive in 1984, now part of the (UK) Companies Act 2006. This has been a mixed blessing as the new requirements call for some clumsy verbiage in place of perfectly familiar terms – for example, 'creditors becoming payable within less than one year' instead of 'current liabilities'. (To add insult to injury, accounts still have to use the latter term as well.) Much of this verbal compulsion seems superfluous in the context of a regime now containing more than a dozen different languages. Morison (1977, p. 272) believed that 'In a troublesome set of accounts ... drafting the narrative can sometimes be as difficult as computing the figures.' That suggests a need to allow preparers of accounts some leeway in the precise words they use. (For a discussion of linguistics and accounting, see Yuji Ijiri (1975, pp. 14–16).)

In 1971 an early Statement of Standard Accounting Practice [SSAP 2] summarised the main measurement rules, setting out four key assumptions in accounting: consistency, prudence, matching and going concern. Modern standard-setters, with their conceptual frameworks, seem hostile to prudence and matching, but all four are still important.

In the last 20 years or so, accounting standards, dealing mainly with disclosure and measurement, have expanded both in number and in length. In 1990 there were 22 UK Statements of Standard Accounting Practice (SSAPs) in issue, containing an average of 13 pages each (about 300 pages in total); whereas now, as well as nine remaining SSAPs, there are 30 Financial Reporting Standards (FRSs) containing nearly 100 pages on average (totalling over 3,000 pages!). A *ten-fold* increase in the number of pages of UK accounting standards in less than 20 years seems somewhat excessive.

At the same time International Financial Reporting Standards (IFRSs) have also proliferated. The Department of Trade and Industry reckoned in 2003 that compulsory application of international accounting standards to all unlisted UK companies (as well as to the 2,700 listed companies) would result in one-off costs for them of between £576 million and £1,400 million. (*Financial Times*, 17 July 2003). This seems a huge amount, and with a huge margin of error too (roughly £1,000 million +/– 40 per cent).

Even though all European Union countries, as well as many others, are now adopting IFRS, it is important to recognise that the quality of implementation may vary. On the surface accounting rules in all these countries may appear to be the same, but there may be important differences in practice.

There is a danger in over-reliance on standards. Standard-setters (even when they agree among themselves) do not *own* accounting: they should be the servants, not the masters, of preparers and users of accounts. An ever-changing world ought to leave room for experiment in choosing how to present accounts, to allow the most appropriate methods to evolve. But according to Hendriksen (1977, p. 14), 'regulation and the demand for uniformity have brought about a stifling of independent research and experimentation ...'

2. Inputs and outputs

The Companies Act requires company accounts to give 'a true and fair view...' That was once thought to imply consistent application of generally accepted accounting principles, involving the appropriate measurement, classification and disclosure of items. More recently Mrs. Justice Arden (ASB, 1993) has claimed it means little more than compliance with (thousands of pages of) official accounting standards. But, as West says (2003, pp. 1, 197), 'compliance with rules per se is not what determines the reliability and usefulness of accounting information... The legislative provision of "true and fair" ... is an output standard, [but] the accounting rules ... are input standards.'

The UK requirement for accounts to show 'a true and fair view' has become 'present fairly' in IFRS. It is a positive virtue that these phrases are somewhat ill-defined, since it permits the precise meaning to evolve over time as business practices change. In contrast, detailed rules tend to be inflexible. People sometimes assert that IFRS are based on principles whereas US GAAP [Generally Accepted Accounting Principles] are based on detailed rules. If so, accountants using IFRS are fortunate indeed to be able to call on no less than 3,000 pages of 'principles'.

In America, 'presenting fairly' requires absolute compliance with US GAAP *even if* it leads to a misleading view. There is no US equivalent provision to the UK's 'true and fair' override, which is a valuable reality check. Moreover the SEC (the Securities and Exchange Commission, a US government agency) says: '... principles, standards and practice promulgated by the FASB [Financial Accounting Standards Board] will be considered by the Commission as having substantial authoritative

support, and those contrary to such FASB promulgations will be considered to have no such support; and will be presumed to be misleading or inaccurate.' (SEC, 1973) One could hardly dream up a bureaucratic rule more likely to suppress innovation and natural evolution.

Modern regulators often focus on box-ticking inputs rather than on real outputs. They are reluctant to allow professional people any range of discretion within which to exercise their own judgement. For instance, Melbury House School in Cambridge was a very successful independent school with a full roll of 200 pupils and a waiting list. It consistently achieved high Scholastic Aptitude Test results and brought many children up to two years beyond their reading age. Under several previous inspections the school had achieved excellent results; but despite its strong academic record, under inspection by OFSTED (the Office for Standards in Education), Melbury House stumbled on every possible count to do with the 'quality of education'. The headmistress felt that the huge importance given by OFSTED to documenting teacher action and logs on each child's learning was superfluous paper pushing which meant teachers forfeited actual teaching time. She said: 'independent schools' very raison d'etre is doing things differently.' (de Waal, 2006, pp. 108–13)

Another example is perhaps even more distressing. Recently a coastguard saved a 13-year-old girl stranded on a cliff, but was reprimanded and forced to leave his job (*The Times*, 12 January 2008). He had breached health and safety rules by not being roped up for the descent. The coastguard, Paul Waugh, said he would not leave any girl hanging off a cliff. 'Saving her life was the important thing. She had been stuck there for 45 minutes. The cliff edge was crumbling away and I didn't think I had time to wait.' But the regulators seemed more concerned with process than with substance.

3. Is too much expected of accounts?

The theme of this book is that accounting numbers can rarely be precise, for a number of different reasons. It is very ambitious to aim to present the complex affairs of large companies in three summary financial statements, even with many pages of notes. In a going concern, a number of transactions are likely to be incomplete at the balance-sheet date, so the annual accounts have to contain estimates as to their future outcome. In making judgements about the uncertain future there are few uniquely 'correct' answers and competent people may honestly hold different views. Different companies may quite properly use accounting policies

which are not exactly the same, even though companies in the same industry often tend to use similar policies.

Modern accounting standards all stem from the FASB's ambitious Conceptual Framework project (see Gore, 1992), which can be interpreted as a victory of the academics (the American Accounting Association) over the practitioners (the American Institute of Certified Public Accountants). The academics sought a comprehensive, self-consistent, 'scientific' deductive system of accounting. In contrast most professional accountants, in the UK even more than in the US, favoured the eclectic, judgemental, pragmatic tradition.

Accounting standards cannot completely eliminate either fraud or error. Yet their existence tends to raise beliefs about the precision of company accounts above what is feasible. They engender 'a climate of false security'. The clear message from the standard-setters is: 'You, the investing public, can safely rely on all our expert effort.' This is partly because of the ballyhoo about what standards are trying to do and partly because providing for enforcement implies (wrongly) that they can in fact do it. Macve (1997, p. 99) suggested that perhaps each set of accounts should carry a 'health warning' like a packet of cigarettes.

Twenty-five years ago, David Solomons (1983) wrote: 'The value of the information which each company provides to its shareholders is much enhanced if it is easy to compare with other companies' accounts. So regulation is needed to secure what everyone wants.' This is indeed a key argument in favour of compulsory accounting standards. But even if everyone wants something, it does not follow that regulation can necessarily provide it.

Expectations are not always well served by hindsight. After the event it can be tempting to conclude: 'The management should have known this' or 'The auditors should have suspected that'. Before the event it is often not so easy. When I was teaching finance I sometimes used to ask people to predict the future course of interest rates. It was remarkable how often students who had boldly pontificated on past changes and trends in interest rates would suddenly discover that the present moment was one of the trickiest in the history of the universe to make any predictions at all!

The Companies Act 2006 repeats the 1948 Act's requirement for accounts to give 'a true and fair view' of financial performance and position. I strongly support this requirement, but it may represent a problem too. While everyone understands that 'fair' may be subjective, laymen may expect 'true' to mean 'precisely correct', which, in the context of accounting, it doesn't. Even worse, people fail to notice that

a key word in the legal requirement is the indefinite article. 'A' true and fair view means just that: there can be *more than one* true and fair view!

4. Quantifying margins of error

'Material' implies 'something that matters'. What does this signify for margins of error in accounting? The Australian Accounting Standards Board (2004) made an attempt to quantify what it means:

> 'unless there is evidence or convincing argument to the contrary
> (a) an amount which is equal to or *greater than 10 per cent* of the appropriate base amount may be presumed to be material; and
> (b) an amount which is equal to or *less than 5 per cent* of the appropriate base amount may be presumed *not* to be material.'

This leaves amounts between 5 per cent and 10 per cent of the base amount in a grey zone. It also suggests that some accounting numbers may not be accurate to within a margin of +/– 5 per cent; though that is hardly the impression one would get from many discussions of accounting numbers. In fact, the level of accuracy implied in most sets of accounts may not be possible.

According to SSAP 3 on Earnings Per Share, dilution of 5 per cent or more was 'material'; while SSAP 25 on Segmental Reporting, requiring each significant segment to be reported separately, defined 'significant' as 10 per cent or more of turnover, profit or loss or total net assets. But more recent standards have tended to avoid precise percentages, apparently because they are regarded as 'open to abuse'. This seems to be a consequence of command-and-control standards, as opposed to genuinely voluntary guidelines.

International Accounting Standards (IAS1) say: 'Omissions or misstatements of items are material if they *could* ... influence the economic decisions of users .... Materiality depends on the size and/or nature of the omission or misstatement....' [emphasis added] It is hard to argue that this definition is wrong: it just seems very general. IAS1 also requires companies to correct all misstatements, other than the clearly trivial, whether they are material or not.

Grady (1965, p. 40) suggested the following general definition, which may be preferable: 'A statement, fact, or item is material, if giving full consideration to the surrounding circumstances, as they exist at the time, it is of such a nature that its disclosure, or the method of treating

it, would *be likely to* influence or to "make a difference" in the judgement and conduct of a reasonable person.' [emphasis added]

This book's main focus is on annual reported profits or losses, though it also discusses margins of error in reporting and classifying assets and liabilities. Unless the context requires otherwise, 'profit' means 'profit after tax for ordinary shareholders in a group's holding company'. For ease of expression I shall normally use the term 'profit' to mean 'profit or loss'. (Of course a loss is a negative profit.) Morgenstern refers to 'the extreme difficulty of estimating errors of observation quantitatively' in the social sciences. Like him, I shall often simply use a common sense approach rather than pseudo-scientific statistical measures.

There is an important distinction between the percentage margin of error in an accounting item, say an expense, and the resultant percentage margin of error in reported *profit*. Suppose, for example, that companies for some reason found it difficult to estimate the precise amount of the final audit fee. Would that really matter, if the resulting impact on profit was tiny? On the other hand, even a fairly small percentage margin of error in depreciation of fixed assets might make quite a big difference to profit.

The International Standard on Auditing (ISA) 320 on 'Materiality in the Identification and Evaluation of Misstatements' suggests benchmarks and percentages to apply, though they are only suggestions which auditors may choose to vary:

- For a profit-oriented entity, 5 per cent of profit before tax or ½ per cent of total revenues.
- For a not-for-profit entity, ½ per cent of total expenses or total revenues.
- For asset-based entities, ½ per cent of net asset value.

ISA 320 goes on to say that misstatements can arise from error or fraud (an 'error' is an unintentional misstatement in the financial statements, while 'fraud' is intentional) and may consist of five different things:

- An incorrect estimate arising from an oversight or misinterpretation of facts;
- An inaccuracy in gathering or processing data used in preparing accounts;
- A difference between the amount of an item and the amount required to comply with financial reporting rules;

- Omission of an amount required to comply with financial reporting rules;
- Differences between management's and the auditor's judgements concerning accounting estimates or policies.

The fourth bullet point is really a special case of the third. And the fifth bullet point seems to imply the dubious proposition that the auditor's judgement is somehow more 'correct' than management's.

Quantification is not the sole attribute of numbers: their *quality* can matter too. In 2007 the finance director of a small enterprise I know forecast a deficit of £200,000 for the year. The amount remained the same as the year progressed, but the flavour changed. In June the forecast £200,000 deficit was 'conservative' (unlikely to be higher); by September it was 'balanced', with any variance as likely to be worse as better. By November the forecast deficit (still at £200,000) was 'tight'; and finally in December the amount increased to £250,000. This is a rare but revealing explicit discussion of an accounting number's quality.

In a somewhat similar way, regular dividends are normally regarded as a high quality method of companies distributing value to shareholders, because they are relatively unlikely to be reduced in subsequent periods; whereas share buy-backs costing the same amount of cash are more transitory and companies can easily reduce or stop them. (This is not a perfect analogy, as share buy-backs do not, like dividends, put cash directly into all shareholders' hands.)

Morgenstern also referred to the elusive task of measuring quality when discussing the 'productivity' of a (musical) quintet (Schotter, 1976, p. 1183). Would it be 'more productive', he asked, to play the music with only *four* players instead of five? Or what about playing *louder* – or *faster*? What is the relevance of this to accounting? Simply that quantifying something may not always be the most meaningful way of assessing it. (This applies also in the context of setting targets for government departments.) Indeed, ultimately valuation itself is a process of *preferring*, using ordinal numbers, rather than a process of measuring, using cardinal numbers (see Mises, 1949, p. 97).

5. Causes and types of error

In this book I do not assume that financial reporting standards are always correct, nor that departures from them must be errors. (This is perhaps most evident in Chapter 4 on inflation accounting.) The errors with which the book mainly deals stem either from incorrect estimates

or from disputes about accounting policies. Again, I do not assume that auditors' judgements are correct or that managements which might disagree are in error. In addition to numerical errors in the amounts attached to income, expenses, assets or liabilities, there may be errors of classification: for example, proceeds from disposal of a fixed asset being described as sales revenue, or short-term liabilities being described as long-term.

Why are company accounts, and reported profits, not precisely accurate? For several reasons, which the following chapters discuss in order:

- The 'interim-ness' of the annual accounts of a going concern
- Various problems with the basis of measurement
- The unreliable nature of money as a unit of account
- The distinction between accounting and economic concepts of income
- The incentives and pressures facing preparers of accounts, sometimes leading to 'creative accounting' and maybe even to fraud.

Chapter 2 discusses margins of error stemming from the 'interim-ness' of the annual accounts of a going concern. Almost all companies prepare annual accounts with a number of transactions incomplete, which means they have to make estimates about likely future outcomes which are still uncertain. *Inter alia* this involves estimating the lives and residual values of fixed assets, the likely extent of any bad debts and whether the value of stocks and work-in-progress is below cost, and, if so, by how much.

Chapter 3, on the basis of measurement, covers the differences between 'historical cost' accounting and various kinds of 'current value' accounting. Traditional historical cost accounting reports to shareholders on managers' stewardship of a company's affairs; whereas current value accounting purports to aim for 'decision-usefulness', mainly trying to help actual or potential equity investors make decisions about buying or selling shares. This chapter also discusses specific topics, such as the treatment of purchased goodwill, accounting for pensions and executive stock options.

Chapter 4 deals with the unreliable nature of modern money as a unit of account. It discusses the extent of UK inflation over the past 60 years and its impact on accounting in terms of money. Two main effects on a single year's accounts are on depreciation of long-lasting fixed assets and losses (gains) of purchasing power in respect of monetary assets (liabilities). There is also a need for inflation adjustments to present meaningful trends over time.

Chapter 5 contrasts two different kinds of 'income'. Accounting profit first determines sales revenue for a period then charges suitable expenses against it to measure accounting profit or loss. The balance sheet is residual, it is *not* a statement of value. Economic income, on the other hand, derives from estimates of value at the beginning and end of a period. Any change during the period, adjusted by dividends paid out and net new capital paid in, represents economic profit or loss.

Chapter 6 deals with 'creative accounting', where senior company managers or government officials massage their organisations' accounts, while aiming to stay (just) within the accounting rules. The chapter discusses the incentives for such behaviour and what sort of items are open to such treatment. The scope for creative accounting covers disclosure as well as measurement; and the balance sheet as well as the profit and loss account.

Chapter 7 gives examples of spurious accuracy in accounting, finance, economics and other areas, where companies and others present numbers to sometimes absurd degrees of detail. The chapter explains why these over-precise numbers arise, persist, and matter.

Chapter 8 gives examples from other walks of life, such as sporting events, weather forecasting, and weights and measures of people living (more or less happily) with approximation. The suggestion is that we should consciously do the same with respect to accounts.

6. Simple mistakes

So far I have identified several different kinds of reasons for errors in accounts. But one should not overlook simple (or not-so-simple) *mistakes*, often due to human error. These do happen, even in the audited accounts of publicly-listed companies. My favourite mistake is one I discovered myself, being one of the few people who actually read the auditors' report on company accounts. This is now much harder than it used to be, since auditors today seem to feel obliged to produce paragraphs of turgid prose explaining what an audit is – or, more to the point, what it *isn't* (presumably in attempting to limit their potential liability). As a result, it can sometimes be quite hard to discover the auditors' report itself, which tends to be buried somewhere in the middle.

To spare everyone's blushes I shall not name the company or its auditors (whom the company has since changed). What happened was that the company paid a special dividend which exceeded the profit for

the year. In those days it was usual to deduct any dividends from the profit at the foot of the profit and loss account. Where the dividend was smaller than the profit, this left an amount of 'retained profit' to be transferred to shareholders' funds on the balance sheet. But where, as in this instance, dividends exceeded the profit, it was usual to describe the resulting balance as a 'retained loss'. Perhaps you can guess what happened. In their report the auditors said the accounts gave 'a true and fair view of the loss for the year'. Which was plain wrong, as the company had made a profit. (Dividends, of course, are not an expense.) So when I pointed this out, the unfortunate company had to send round a special correction slip to all shareholders, to the effect that when the auditors said 'loss' they had meant 'profit'!

Double-entry book-keeping can help prevent certain kinds of arithmetical error, since balance sheets always have to balance. But other kinds of error can still occur. For instance, if depreciation, say 10 per cent of £2,550, is wrongly calculated as £250, the result will be to slightly understate the expense, and to slightly overstate both profit for the year (and hence shareholders' funds) and net book value of fixed assets. An error as small as this will do no harm. But suppose instead that depreciation of 10 per cent on £2,550 million were wrongly calculated as £155 million. No doubt so big an amount (£100 million) is likely to be noticed, but such a relatively large error is not *impossible.*

Another area where simple mistakes can easily creep in is stock-taking. Some stock can fail to be counted at all (for example, in an out-of-the-way location); some of the cost prices can be wrongly stated; write-downs can be mishandled; arithmetical errors are possible, including multiplication and addition; and totals can simply be misread. More complex mistakes can arise in eliminating intra-group profits from stock valuations in the context of consolidated accounts.

Even the largest companies are not immune. The American company General Electric (GE) found 'significant deficiencies' in how it booked spare parts revenues after January 2002. According to the *Financial Times*, the latest accounting problems came after GE was forced to restate and adjust reported earnings four times between 2002 and 2007. But the total effect of GE's restatements, though seemingly large in absolute terms, was in fact *relatively* small: a reduction of just $297m in $118bn of earnings (less than 0.3 per cent).

2
The 'Interim-ness' of Accounts

What is a short period for one problem is a long period for another.
Alfred Marshall (1890/1964, p. vii)

Companies which last for many years need to account regularly, and quite frequently, to their owners. But 'going concerns' often have much unfinished business at the end of their financial year, which leads to a need for estimates in the accounts, and it can be difficult to allocate income and expenses between accounting periods. Moreover the shorter the accounting period, the larger the proportionate margin of error in reported profit or loss.

As a result caution is needed in trying to interpret annual company accounts. Two or three financial statements attempt to summarise the often complex affairs of large businesses. Even with extensive notes to the accounts, this is a very ambitious undertaking. Sometimes broad trends in profits, assets and liabilities over longer periods of five or ten years may be more useful than separate annual accounts.

1. Introduction

Long ago there was a transition from 'one-off' accounting for entire 'ventures', which lasted only for a discrete period, to regular accounting for 'going concerns'. A 'venture' might be a voyage to the Indies, with 'shareholders' who when (if) the ship returned would receive their due proportion of the proceeds. This would repay the initial capital that shareholders had subscribed together with a share of any profits. A single end-of-voyage accounting would report the amounts.

'Going concerns', in contrast, required permanent 'capital' which they would expect never to repay to shareholders. An early English

example was Hugh Myddelton's formation of the New River Company in 1609, to bring water to London. Such an enterprise needed to measure profit to determine how much it could safely distribute to shareholders by way of 'dividends', without reducing its capital. Thus regular annual accounts became the norm. In the context of a going concern's whole life they are themselves really only 'interim' accounts (not 'final', as people sometimes call them). The introduction of limited liability, in the middle of the nineteenth century, led to a need to preserve capital to protect the interests of creditors. Often the intention was merely to maintain the business's size, not to increase it; hence dividends might roughly equal profits for a period, with little or no retention of profits.

But these 'interim' annual accounts in the life of going concerns are essentially artificial. Most companies produce accounts for shareholders at least once a year, even though their lives often cover much longer periods. So at the year-end date at which companies draw up their balance sheets, some transactions are usually not yet complete. Hence those who prepare accounts for such 'going concerns' have to make several *estimates* as to ultimate outcomes in the uncertain future. These may involve a large potential margin of error. Even if it were possible to make accounts somewhat more accurate, the question arises: would the cost (in money or time) really be worth it?

In a going concern lasting for many years, accounting to shareholders would have little practical meaning if it happened only once, after the business was wound up. In that case, someone investing today might expect their grandchildren to be the people who would receive the *single* set of 'lifetime' company accounts! Indeed the interval might be even longer, since ongoing companies might acquire failing ones (as a 'civilized alternative to bankruptcy'). So the enterprise which published a single set of lifetime accounts might be quite different from the one that the original shareholders invested in.

Certainly companies can change many aspects of their nature during their lives: their 'character' is not like that of human beings. At Marconi plc's 2003 Annual General Meeting [AGM], an elderly member of the audience plaintively asserted that he had been a shareholder since 1963. But the prudent predecessor company (The General Electric Company plc [GEC]) which Arnold Weinstock ran for many years had by 2003 become more venturesome, even reckless. What this shareholder assumed to be still the 'same' company had, over time, changed almost beyond recognition. For example, Marconi borrowed heavily to pay inflated prices *in cash* for two high-tech US companies at the peak of the

dot.com. boom. GEC under Weinstock would never have done that. He liked 'cash mountains', which have their own problems (see Chapter 4, section 2b); and he was always careful to avoid over-paying for acquisitions.

Having to account at least once a year for one's actions, and their impact on a company's affairs, concentrates the mind. The main purpose of regular 'stewardship' accounting is to influence the behaviour, not of the shareholders but of the *managers* (Page, 1992). And the knowledge that companies will be publishing regular reports is likely to reduce the risk as perceived by investors and makes them more willing to provide equity finance.

Another compelling reason for annual accounting is governments' taxation of company profits. This would be difficult to arrange without seeing accounts, even though in most countries 'taxable profit' is not quite the same as 'accounting profit'. There is an argument for taxing only *shareholders,* as if they were 'partners' in companies (Myddelton, 1994, pp. 72–3), but even this would still require regular company accounts.

Splitting a going concern's lifetime profit and loss account [income statement] into shorter periods involves two things: judgements about which period some items should go in, and estimates about some of the amounts. Reporting an expense in, say, period eight rather than period nine, affects the results of *two* periods, not just one. Often an error will affect adjacent accounting periods in opposite ways. Suppose, by mistake, an expense of £x in Period 8 is omitted, and so has to be included in Period 9. Period 8's 'true' profit has been overstated by £x (ignoring any tax effects) and Period 9's *understated* by the same amount. But the differences are usually fairly small, in which case the later period's accounts can silently absorb them.

For publicly-owned companies, the brevity of the interval before they have to publish their accounts makes things more difficult. (This interval has, for good reasons, become much shorter over the past 30 years or so.) Even waiting for, say, six months after the year-end before completing annual accounts would reduce, if not eliminate, many doubts. Two factors can mitigate the margin of error: the offsetting process of 'swings and roundabouts' and consistent treatment of like items. But one needs to be cautious about the 'swings and roundabouts' argument. It is possible that errors in opposite directions, and from different causes, could happen to (more or less) cancel each other out; but this convenient assumption is not self-evident.

Another way to mitigate uncertainty is to be *consistent* in the treatment of similar items from one period to another. This is very important in looking at trends over a period of years, which is a major use for accounting numbers. Consistent treatment, especially in a relatively stable company, may help significantly reduce the margins of error in reported profit for a specific period. But, as shown later, the end-of-period balance sheets [statements of financial position] might still be consistently wrong.

A single company being consistent over time need not mean it uses the same accounting treatment as other companies. It is a pity that accounting standard-setters use the same word – 'comparability' – to refer to the two quite distinct sorts of comparison. The International Accounting Standards Board [IASB] even discusses the two different ideas in the same paragraph [39] of its Framework document.

A single entity can easily be consistent in its accounting treatment of items from one period to another; or disclose any change in treatment, noting the extent of its impact. Indeed this seems the most natural way for honest business people to behave. But it is much harder for different companies in different industries in different countries, maybe with different legal systems, to produce accounts, possibly for somewhat different periods, that are truly comparable with each other. Standard-setters risk misleading readers of accounts by pretending that the two kinds of comparison are equally important or equally feasible.

Most of the discussion in this book relates to annual accounts, covering a period of 12 months in an entity's life. If the accounting period were shorter, many of the margins of error in reported profit would increase, as a proportion of profit. This is a real drawback of 'interim' reporting at more frequent intervals. It is noteworthy that the European Union recently rejected a proposal to require quarterly accounts from listed companies.

Company profit and loss accounts sometimes cover periods shorter than a year as a more frequent interim measure of business performance. An alternative solution might be to pay regular quarterly dividends, along US lines, in place of the normal UK practice of irregular 'interim' and 'final' dividends. This would clarify the explicit signal from management to shareholders. Being in cash it would be hard to overlook and relatively easy to understand. And since companies may legally pay dividends out of past cumulative retained profits without necessarily requiring current profits to cover them, more frequent payment of dividends need not involve the external reporting of *profits* over very short periods. In the short term, of course, there is no reason

why the pattern of dividend payments should exactly reflect the pattern of earning profits.

One-year accounting periods are highly artificial, so it is perhaps surprising there has not been more interest in experimenting with longer accounting periods, of three, five, or even ten years (Myddelton, 1972, 1996). These need not be either/or – one could have, say, rolling five-year accounts *in addition to* one-year accounts. Certainly it might make sense to calculate volatile earnings per share not just year by year, but also using three-year or five-year averages. (Indeed this might be especially desirable as several recent accounting standards seem likely to increase the volatility of annual reported profits.) Many margins of error would *fall* in proportion if accounts covered periods of, say, as much as five years at a time. (Standard-setters discourage a 'trial and error' approach to accounting, but forbidding trials does not prevent errors.)

The rest of this chapter deals first with the main balance sheet items and their impact on profit (sections 2 to 4), then with any remaining profit and loss account items (sections 5 to 7).

2. Fixed assets – tangible

a. Depreciation

(i) General

Providing for depreciation of tangible fixed assets with a finite useful life of more than one year, such as buildings or equipment, is perhaps the single most obvious accounting item likely to involve a margin of error. Measuring the expense for a period normally involves four steps:

- Determine the fixed asset's **cost**
- Estimate its future useful **life**
- Estimate the **residual value** (if any) at the end of its useful life
- Choose a **method** of depreciation.

The first three steps determine the net total amount (cost minus residual value) to charge to expense over the asset's useful life. The final step is to choose a method of depreciation to allocate the net cost between periods – either a time-based method such as straight-line, accelerated or annuity, or a usage-based method. Both approaches involve estimates: how many years an asset will last, or how much use it will provide. (In product costing, the former is treated as a 'fixed' cost, the latter as a 'variable' cost.)

Depreciation alone is enough to explain why a going concern's accounting profit for a period can usually only be an estimate. Over a fixed asset's whole life, the total depreciation expense charged is exactly correct, ignoring problems arising from inflation (discussed in Chapter 4). It amounts to the asset's initial cost, less any proceeds from sale or disposal at the end of its useful life. But companies have to judge how to allocate this expense between accounting periods and there is usually no uniquely correct way to do this.

If substantial repairs merely restore a fixed asset, they are revenue expenses. But to the extent that they improve on an asset's original condition, they are capital and increase that fixed asset's cost. An improvement may increase an asset's capacity, lengthen its useful life, reduce its running costs, or improve the quality of its output. It is normal, for practical reasons, not to capitalise small expenditures on fixed assets but to treat them as expenses in the current period. A change in the cut-off level for doing so can mean that one year's accounts are not strictly comparable with another's, but the effect is usually small.

Even if a tangible fixed asset's cost is fairly certain, that still leaves the useful life and residual value to guess. (They may be related: a longer life may often mean a smaller ultimate resale value.) Accounting standards require companies to review the remaining useful lives and residual values of assets every year; but in fact residual values are rarely changed. There are three main reasons why an asset's useful life may be finite: the passing of time; physical wear and tear; and technical or market obsolescence.

Where elapsed time causes an asset's life to be finite (as for a lease), pro-rata straight-line depreciation should be fairly accurate. An asset's useful life may partly depend on policy: for example, some fleet car owners may always aim to re-sell their second-hand vehicles after, say, three years. This fixes the useful life, but the residual value may vary. Where physical wear and tear is the cause of an asset's life being finite, engineers may often be able to assess quite closely how long a properly-maintained asset should last, at a specific rate of usage. In both these first two cases, a shorter life may mean a higher residual value.

But it can be hard to guess when technical or market obsolescence will limit an asset's life. Such 'creative destruction' (Schumpeter, 1954, p. 84) may imply a very low residual value whenever it occurs. If a fixed asset's net book value is thought unlikely to be recovered in full in future periods, part of it must be written off immediately. Past experience may sometimes be relevant, but on other occasions unique unpredictable factors may be at work. Then the depreciation expense

may be a long way out. To allow for such doubts companies may purposely use short lives for some fixed assets, such as computers.

(ii) Different methods

There are several possible methods of depreciation, illustrated below. Of the time-based methods, straight-line depreciation writes off a constant percentage of cost each year and is easily the commonest method in the UK. So-called accelerated methods charge more in the early years of a fixed asset's life. The 'sum-of-the-years' digits' [SYD] for an asset with a 5-year life would be 5 + 4 + 3 + 2 + 1 = 15; so the first year's depreciation would be 5/15^{ths} of cost, the second year's 4/15^{ths} of cost, and so on. 'Declining balance' methods apply a higher percentage than the straight-line method, but to the *declining* net book value year by year, rather than to the original cost. In the last year they write off the whole remaining balance in excess of expected residual value. Double declining balance uses twice the constant percentage rate used for straight-line depreciation. For UK tax purposes, a 20 per cent declining balance rate is common, but this would normally apply to assets expected to last longer than five years.

The annuity method is a decelerated method of depreciation, which allows for interest, shown here at 10 per cent a year. (At this rate, 1 accumulates to 6.105 over five years; so the first year's depreciation is 200/6.105 = 33, the second year's 10 per cent more than that, namely 36, etc.) There are also usage (or unit of production) methods, reckoning an asset's life, not in terms of time, but in terms of units of output, such as machine-hours, tons, miles, etc. Unit of production methods are common for extractive industries.

Table 2.1 sets out annual depreciation charges and end of year [EOY] net book values under various time-based methods for a single fixed asset costing 200, expected to last for five years, with no residual value at the end of that time. It shows, from left to right:

- The straight-line method [20 per cent on cost];
- Sum of the years digits [SYD] [15ths on cost];
- Double declining balance [40 per cent on declining balance];
- Declining balance [20 per cent on declining balance];
- Annuity method [assuming 10 per cent a year interest].

Thus annual depreciation charges (for a single fixed asset) can vary a good deal, solely as a result of using different time-based depreciation methods, even if identical assumptions are made for the asset's useful life and resid-

Table 2.1 Various time-based methods of depreciation

	Straight line	SYD	Declining balance		Annuity
	20% on cost	15ths on cost	40%	20%	
Cost	200	200	200	200	200
Year 1 Depreciation	40	67	80	40	33
EOY 1. Net book value	160	133	120	160	167
Year 2 Depreciation	40	53	48	32	36
EOY 2. Net book value	120	80	72	128	131
Year 3 Depreciation	40	40	29	26	40
EOY 3. Net book value	80	40	43	102	91
Year 4 Depreciation	40	27	17	20	43
EOY 4. Net book value	40	13	26	82	48
Year 5 Depreciation	40	13	10	16	48
Year 5 Additional depn	–	–	16	66	–
EOY 5. Net book value	–	–	–	–	–

ual value. Obviously usage-based methods could differ from any of these. But whatever the method, the total depreciation for a single asset over a five-year period is 200 (i.e. cost less assumed zero residual value).

In a stable state for *five* such fixed assets, if one is purchased each year, aggregate annual depreciation in a single period will also be 200. Table 2.2, however, shows that the aggregate net book value, in a stable state, of five such assets, can vary a good deal. For the five methods shown, the average aggregate net book value could vary between 361 and 537. (This can be expressed as 449 +/– 20 per cent.)

A company should be consistent in its choice of depreciation method for a class of fixed assets. Another company in the same industry might (equally consistently) choose another method; in which case the two companies' reported profits (and net book values of fixed assets) would

Table 2.2 Aggregate net book value for five fixed assets

	Straight line	SYD	Declining balance		Annuity
	20% on cost	15ths on cost	40%	20%	
Aggregate net book value for five such fixed assets					
'Start of year'	600	466	461	609	637
'End of year'	400	266	261	409	437
'Average'	500	366	361	509	537

differ. It is not a question of one method being correct and the other incorrect. The result depends mainly on the integrity and skilled judgement of the accountants and senior management. 'If, in similar situations, equally capable practitioners arrive at different solutions, it may well call for what Dr. Lin Yutang calls a typically Chinese point of view, that "A is right, but B is not wrong either."' (Byrne, 1937, p.378)

(iii) Different assumptions about life and residual value

Another example illustrates possible margins of error for a single asset using the straight-line method of depreciation, but varying the assumptions about useful life and residual value. Let us suppose that for an item of equipment costing £240,000 we expect zero residual value. This simple assumption is common, as well as somewhat conservative: it often leads to some profit on ultimate resale.

The fact remains that, even given a particular method of depreciation, if we don't know for sure how long the asset will last, we cannot tell exactly how much profit the company has made in a period. The resulting margin of error in reported profit depends on two things: the margin of error in the annual expense (arising from errors in guessing the asset's life or residual value), and the relative size of depreciation expense compared with profit.

If the asset's expected life could vary between 8 and 15 years (giving an average life of 11.5 years +/– 30 per cent, quite a large range of doubt), then the annual charge for a single asset could vary between £30k [1/8th of cost] and £16k [1/15th of cost]; which can be briefly expressed as £23k (the mean) +/– £7k (30 per cent).

Clearly if depreciation expense were only small compared with profit, even a large margin of error in guessing it would make little difference to reported profit. If annual profit before depreciation [PBD] were £60k, then profit after depreciation [PAD] in this case could vary between £30k and £44k [£37k +/– 19 per cent]. But if annual PBD were £600k, ten times as much, then PAD could vary between £570k and £584k [£577k +/– only 1.2 per cent]. (The percentage variation in profit after *tax* would be somewhat higher, since book depreciation as such is not tax deductible.)

There may be an inverse relationship between useful life and residual value. Assume, for example, that the fixed asset costing £240k will at once lose value by one sixth of its initial cost, and that the resale value thereafter will reduce evenly year by year from £200k to £20k over its maximum life of 15 years (i.e. by £12k a year). The net amount to write off over the asset's whole life, and the resulting annual expense, would

Table 2.3 Depreciation charge varying with asset life

Original cost £'000	**Useful life** *n* years	**Residual value** £'000 [£200 – £12*n*]	**Net amount to write off** £'000 [£240 – RV]	**Annual depreciation** £
240	8	104	136	17,000
240	10	80	160	16,000
240	12	56	184	15,333
240	15	20	220	14,667

then vary as shown in Table 2.3. (It would not be usual to write down the cost by £40,000 in Year 1 and then simply charge £12,000 a year expense in addition. Depreciation aims to allocate an asset's cost over time by some systematic method, not to produce a net book value equivalent each year to its changing resale value.)

On these new assumptions, the range of annual depreciation expense, is now only from £14,667 to £17,000. With PBD remaining at £60,000, the range of PAD is now £43,000 to £45,333 – or £44,167 +/– £1,167 (2.6 per cent). So revising the assumptions about residual value has reduced the apparent possible margin of error in reported profit from 19 per cent to only 2.6 per cent, even though the margin of error in the estimates of the asset's life remains at 30 per cent. (With PBD of £600,000, the new range of PAD would be £584,167 +/– £1,167, only 0.2 per cent.)

But this is only one of any number of possible assumptions: residual value may not always vary on a time basis, nor need we always assume an immediate drop in resale value. If we assume a residual value of zero, as is common, changes in the asset's life will make much more difference to depreciation expense than in this example. And aggregate depreciation for a collection of such assets would be likely to vary much less than for a single asset.

The way that large UK food retailers account for the cost of land is noteworthy. Because of strict planning permission rules, there is fierce rivalry for sites on the edge of towns and those competing have to pay premium prices. The supermarkets expect social conditions to change in the next half-century, so they assume that when they come to sell their land they may be unable to recover the premiums. Hence they now write off the premiums over a life of 40 or 50 years. But their assumptions may be incorrect, in which case their depreciation expense will have been wrong for 40 or more years.

If a company's management overestimates fixed asset lives (or residual values) in advance, there will be a loss on ultimate disposal, since the sale proceeds will be less than the net book value (cost less total depreciation). Accounts normally treat profits or losses on sale of tangible fixed assets as adjustments of depreciation expense from previous periods (which, indeed, is exactly what they are). Any business which often incurred losses on sales of fixed assets would probably reduce its asset lives or expected ultimate sales proceeds and thus increase its annual depreciation charges (and *vice versa*). Hence to some extent such errors are likely to be corrected over time.

The actual working life of many tangible fixed assets could easily vary by at least 20 per cent. Even so, with unbiased estimates, there may be offsetting errors between life and residual value and between different assets of the same class. Thus despite all the estimates needed, the margin of error in the total depreciation expense may be small (and the percentage margin of error in profit often smaller still).

b. Capitalising interest

The cost of acquiring a tangible fixed asset from an external supplier is the invoice price plus any cost of transporting and installing it. But it can be difficult to quantify the cost where a company constructs an asset itself. Even if the amount and cost of raw materials and direct labour can be determined, how much should be added for indirect overheads? Some people suggest that companies should include, as part of the cost of such an asset, any debt interest paid during the construction period. They think this will result in better matching of total expense against subsequent benefits from the asset. But there is both a theoretical and a practical problem with this argument.

People sometimes argue that if a company purchased a similar asset from outside, its price would include the cost of finance. But this proves too much. For the external price presumably includes an 'interest' charge on the *total* capital employed, either actual (on debt) or 'notional' (on equity) [see Chapter 5, section 3]. Yet for internal construction it is proposed to capitalise interest *only* on the cost of debt.

Moreover many companies operate, in effect, with a pool of funds, so often it is not possible to tell whether it is debt or equity that finances a specific payment. For equity-financed assets, there is no explicit cost in the accounts, hence no amount to capitalise. And unless it is clear which tranche of debt financed which asset, it may not be possible to identify the relevant marginal interest rate, so in practice an average rate may have to be used.

The effect of capitalising interest is to charge it not as interest expense in the period when it arises, but as depreciation expense over a fixed asset's subsequent life. It is merely a matter of *timing* – as, of course, is the process of capitalising the asset in the first place. As long as a company follows the same policy every year, the overall impact on annual profits is likely to be fairly small. The only exception might be if the level of capital spending varied much from year to year. The total effect on the net book value of tangible fixed assets also seems unlikely to be large in most cases.

3. Current assets

a. Stocks and work-in-progress

(i) Long-term contracts

Long-term revenue-earning contracts (often related to construction) span more than one accounting year (so they could last less than 12 months), but rarely more than three. The main accounting problems are guessing the ultimate outcome of incomplete transactions and splitting profits (or losses) on the whole contract between years.

One approach, based on prudence, values long-term contracts in progress at cost (or lower); and reports all the profit on *completion*, while allowing for any expected losses as soon as possible. Where a business has a few large contracts, this method can lead to big swings in profit, depending on which contracts finish in a period.

The second approach, which IAS 11 now requires, tries to match profit with the period in which the work is *performed*. But again accounts recognise any expected losses at once. When things go wrong with contracts it may be hard to predict the final outcome. For instance, a major scandal relating to long-term contracts was among the factors which led to bringing in UK accounting standards in the first place. It illustrates the possible extent of the margins of error.

In October 1967 the General Electric Company [GEC] made a takeover bid for Associated Electrical Industries [AEI]. During the contest, in the tenth month of its financial year, AEI forecast a pre-tax profit for the year of £10 million (more than **£120m** in terms of 2008 pounds). In the circumstances, it would have been natural for AEI to do all it could, within the rules, to predict high profits for 1967.

In the event GEC won control, so was in charge of preparing AEI's final accounts for the year ended 31 December 1967. Those accounts reported a £4.5m loss, which was £14.5m [**£175m**] less than the profit

AEI had predicted a few months earlier. The discrepancy was mainly due to lower values for contracts in progress: £9.5m [**£115m**] related to matters of 'fact' and £5.0m [**£60m**] to matters of 'opinion'. GEC, under Arnold Weinstock, famously took a prudent view of everything.

The reduction in profit of £14.5m was probably little more than a normal margin of error, compared with end-1967 stock and work-in-progress for AEI of £100m and gross assets of £280m. But its extent surprised many people when, for once, such differences of fact and opinion saw the light of day. In this case, there was an explicit change of management and two different approaches to valuing long-term contracts. The example underlines the need, as a rule, for consistency of approach in order to give 'a true and fair view' over a number of years.

(ii) Stocks

A business which makes goods for stock (rather than to order), does not recognise revenue (and therefore profit) as soon as the production process is complete. Instead, on the assumption that selling is often the critical event, it waits until it has actually sold the goods. Accounts do not recognise income where there is doubt – instead they follow the rule: don't count your chickens until they are hatched.

Meanwhile balance sheets normally value the stock of finished goods at cost (not at selling price). 'Cost' can be computed on the First In First Out (FIFO) basis, as average cost, or (in the United States) on the Last In First Out (LIFO) basis. In fact, accounts show stocks at 'the *lower* of cost and net realisable value' in order to allow for possible losses as soon as possible. Cost includes the cost of materials and direct labour, together with a fair share of production overheads. 'Net realisable value' means expected ultimate sales proceeds less any direct costs of selling.

There can be problems in physically counting stock and in choosing how to allocate production overheads. But as long as a business always uses the same approach there should normally be only a small margin of error in valuing raw materials or finished goods at cost. Work-in-progress may be harder to value, as it requires subjective judgements as to the level of completion, and possible future losses; and there may often be no easy way to estimate market value for partly-completed goods, for which there may be no regular 'market'.

Writing down the cost of stocks, if net realisable value is expected to be lower, requires estimates of the uncertain future. For retailers and manufacturers the two most likely reasons for a write-down are that

the quality of goods is somehow impaired, so that the normal selling price may not be achievable; or that the selling price in the market has fallen considerably. (The profit margin is expected to be not just lower than usual, but more than completely wiped out.) Highly specific finished goods, especially if subject to fashion considerations, may be liable to a much larger margin of error than commodities.

When things go wrong, for example when sales volume is less than expected, it can be hard to know how soon to cut back the rate of production or purchasing. The longer the delay, the higher the stock of unsold goods may grow. The resulting effect on reported profit depends on the size of stock relative to profit and, for manufactured goods, the basis on which overheads are being spread.

The shorter the accounting period, the larger – in proportion – will be the impact of any stock write-down. Take a business with annual sales revenue of £1,600m with an average profit margin of 10 per cent. Suppose that cost of stocks amounts to £200m, and there is to be a 2.0 per cent write-down on the total cost of stock. Then the stock write-down of £4m will represent 2½ per cent of normal annual profits of £160m. But in quarterly accounts – assuming no seasonal variation – a stock write-down of £4m will represent 10 per cent of a normal quarter's profits of £40m.

b. Trade debtors

Trade debtors (accounts receivable) represent amounts due from customers who have purchased goods or services on credit and not yet paid in full. Measuring the total amount outstanding at the balance sheet date should present few problems. It is normal to recognise profit at the time of sale, even if the customer has not yet paid. Legal title normally passes when the vendor delivers goods or services; hence the purchaser can be sued for the agreed price if he fails to pay. If need be, one can make separate provision for possible bad debts – that is, customers who have bought goods or services but fail to pay in full. The practice is to show bad debts as a separate expense, not to deduct them directly from sales revenue.

There can be several different reasons for bad debts. The customer may be unable to pay, perhaps even having gone bankrupt; or unwilling to pay (in full), maybe because there is some dispute about delivery or quality of the goods; or perhaps the customer (fraudulently) never intended to pay, and is not easily traceable. Where a business is fairly stable, it is common to make a general provision: for example, 1.5 per cent of all amounts owing at the year-end. (But, here as elsewhere,

often a key question is: 'To what extent will the future be like the past?') Alternatively specific provisions may be made against the amounts owing from particular debtors, where there is reason to expect a shortfall.

It would be possible to try not to extend credit to any customer whose financial soundness was in any doubt. But such a policy would be unlikely to maximise profit, as the loss of gross profit margin would often be larger than the avoidance of bad debt losses. Thus most companies selling on credit will have a continuing need to guess how much of the total amount of accounts receivable due will in the end never be collected. As so often in accounting, estimates made in one year may turn out to be not quite right, so there will often have to be adjustments next year.

For instance in the year when Rolls-Royce was going bankrupt, Lucas Industries, one of its biggest suppliers, made a large provision for a possible bad debt. But the government nationalised Rolls-Royce, which was thus enabled to pay up in full. So next year Lucas Industries wrote back the whole of the previous year's Rolls-Royce bad debt provision. Thus two years' accounts were in error, not just one, though there may well have been a judgement in good faith using the best interpretation of the facts available at the time. It is hardly surprising that firms which go bankrupt often do so owing unusually large amounts to their trade creditors. (One of the difficult tasks facing a trading partner of a firm in trouble is deciding at what point to refuse to extend any further credit, or what special terms to demand.)

It is worth noting the very large difference likely between what debtors and stocks can be expected to realise in the normal course of business as a going concern – which is the usual basis for accounts – and the much smaller amount they might realise on a winding-up. Hence corporate bankruptcies can be expensive for a company's unsecured creditors as well as for its shareholders.

4. Liabilities

a. Current

Trade Creditors (accounts payable) refer to items bought on credit from suppliers, whereas Trade Debtors (accounts receivable) refer to items sold on credit to customers. Omitting creditors (and the related expenses) would mean the accounts overstate profits. In small businesses it is quite easy to overlook or understate creditors or accruals at the year-end.

One would not normally expect to come across the equivalent of bad debts in the case of Trade Creditors, but I did recently. It was in respect of a purchase for which an enterprise had (due to an oversight) never received an invoice. Honesty required it to inform the supplier, but the amount was large and the managers chose to be dishonest! The auditors did not 'qualify' the accounts, but suggested not taking credit for the 'good debt' until six years had expired. After that, the Statute of Limitations would prevent the supplier legally claiming the money.

Some expenses (such as utility bills) may often accrue partly on a time basis. Other accrued charges may represent the cost of services consumed, for which a business has not yet received an invoice at the balance sheet date. Total accrued charges are normally much larger than prepayments (amounts paid in advance), because few businesses are able to demand payment in advance – indeed, most have to allow customers credit instead.

Some enterprises, however, do require customers to pay in advance, such as clubs, schools, universities and magazine publishers. They show as 'deferred income' any cash received relating to future periods. The *amount* of the current liability appears as the pro rata sales revenue not yet earned, rather than the marginal cost of fulfilling the order, which would often be much less. (Using the latter would imply 'front-end loading' of profit reporting, which would not be regarded as prudent.) Such amounts can represent an important means of financing the business, but, often being time-related, should not normally lead to much error in reporting profits.

Until recently UK companies treated 'final' dividends proposed in respect of a year as current liabilities at the balance sheet date. The accounts deducted such proposed dividends from profit, to show 'retained profits for the year' which were added to the cumulative profit and loss account balance. (Such dividends were not expenses, so they never reduced the amount of profit for the year.)

But now UK companies add the year's profit after tax for ordinary shareholders directly to the cumulative profit and loss account balance on the balance sheet. They deduct dividends only when they become legally payable, when the company's directors have actually declared the dividend (not merely when they announce their intention to do so in future). Thus UK practice now conforms with the (more logical) practice of most other countries. This may seem a small change, but it can alter a number of financial ratios, including return on equity and current ratio. So changes of this sort may slightly affect trends over time. (Earlier years' figures would not necessarily always be adjusted.)

b. Longer-term

The nominal amounts of borrowings not due for repayment for more than a year are shown as long-term liabilities, with details of repayment dates appearing in the Notes to the Accounts. (See also Chapter 3, section 10, on discounting liabilities.) Where there is a range of possible repayment dates, at the lender's option, the shorter date determines whether a liability is current or long term. Thus, for example, bank overdrafts, which are legally repayable on demand, appear as current liabilities, even if they are expected to be rolled over into the future. Preference share capital, for a going concern, would normally count as a liability (rather than as equity), since from the ordinary shareholders' point of view it normally represents a money amount to be repaid in full before the equity shareholders get anything.

Provisions are liabilities of uncertain timing or amount. They may often be short term (payable within one year from the balance sheet date). For example, some businesses make sales with warranties attached. These are promises to undertake certain repairs or replacements if necessary free of charge, or at reduced rates. Clearly this is an area where it can be hard to forecast accurately how much provision to make. Longer-term provisions should be discounted if material.

Contingencies (such as a lawsuit against a company) are not certain to give rise to outflows; but provision for them is required if they are sufficiently likely to do so. Accounts do not *recognise* contingencies with an estimated probability of less than 50 per cent, but the notes *disclose* their possible existence. By their nature, the likelihood or amount may often not be easy to quantify. (And there may be an incentive not to be conservative, if providing for a high potential liability makes it harder to negotiate a low settlement.) Hence margins of error may sometimes be large; and with lawsuits the time-lags may be long.

A notable example of the possible margin of error is given by the costs of nuclear plants. In 1989 Sir Walter (later Lord) Marshall, then chairman of the Central Electricity Generating Board [CEGB], revealed that the financial provisions for reprocessing Magnox fuel and decommissioning Magnox power stations (from the first civil nuclear power programme) were to increase from £2.8 billion to £6.9 billion. £3.1 billion of the £4.1 billion increase was attributable to fuel cycle costs, the rest to decommissioning. There were three main reasons for the huge increase in fuel cycle costs:

- British Nuclear Fuels Ltd. was increasing its charges to compensate for the risk involved in replacing its earlier cost-plus contracts with fixed price contracts;

- an increase in the CEGB's contingency allowance; and
- a change in CEGB accounting practice.

Corresponding figures for Advanced Gas-cooled Reactors (from the second civil nuclear power programme) were estimated to amount to at least a further £5 billion (Robinson, 1991, p. 39). These huge errors in government accounting came to light only when prospectuses were needed to privatise the state-owned electricity companies. Then the capital markets for the first time had to assess the likely overall net profitability of nuclear power stations; and the senior managers for the first time had to accept personal responsibility for the accuracy of their estimates.

5. Sales revenue

Turning now to profit and loss account items, determining sales revenue for a period is critical in measuring profit. There can be doubt about precisely when a sale occurs, which affects the amount of profit from one period to another. But as long as a business is consistent in its judgements, there is unlikely to be much distortion to the trend of sales and profits – unless there are just a few large 'lumpy' transactions or contracts. Hence UK accounting has managed quite well without any accounting standard on this topic until very recently.

The three 'events' which could in theory determine when to recognise profit are: producing the goods, selling them, or receiving payment for them. When a business produces goods for stock rather than to order, it is sometimes uncertain whether, or at what price, it can sell them. So the date of sale, rather than the date of completing production, determines when to report both sales and profit. Waiting until a business had received cash before recording sales would be too cautious: if an amount is legally due, one can always provide for possible bad debts.

Three events relating to sales often happen at around the same time: physical delivery of goods or services, passing of legal title and rendering an invoice. Strictly it is the passing of legal title (and risk) to the purchaser that fixes the date of the sale. Accounts recognise sales revenue when legal title passes even if some obligation remains, such as after-sales service, for which sellers can make separate provision. In the same way, a business may need to provide for possible future sales returns, quantity discounts or rebates. In such cases, past experience often provides a reasonable guide.

Where goods are made to order, or where services are provided, the sale occurs before production, and sometimes payment or part-payment

too. Here accounts recognise sales revenue by reference to the stage of completion and any cash received in advance appears as 'deferred income'. There can be room for argument about what proportion of any specific order has been completed. As usual, following a consistent approach is necessary, though not sufficient, for adequate accounting.

As to the *amount* of a sale, trade discounts and quantity discounts are treated as reductions of the price, while cash discounts are treated separately as financial items, if and when taken. Sales taxes, such as value added tax, are excluded from sales revenue, as they are merely being collected on behalf of the government. Barter transactions, where little or no cash is involved, are recorded at the estimated value of the goods received. Clearly barter can involve a significant margin of error, but for public companies it is relatively rare.

6. Revenue investments

a. Research and development

One problem in accounting is the treatment of so-called 'revenue investments'. This is spending which accounts expense in the period incurred, mainly on grounds of prudence. Such expenditures could, though, be regarded as investments, often in intangible assets, aiming to benefit future periods; and companies could therefore seek to match them against the future benefits.

We have seen that margins of error can arise with respect to tangible fixed assets. There may be different judgements about their future useful lives or resale values, and similar companies may use different methods of depreciation. With research and development [R&D], all companies have to follow more restrictive rules.

In general, there are three kinds of R&D: pure research, applied research, and specific product development. Normal treatment is to write off spending on research as an expense in the period incurred. But companies are required to capitalise spending on product development if it meets certain conditions suggesting that they are likely to recover the cost in future. They then write off the cost as an expense in future periods to match it against revenues earned.

All companies must do much the same, but that removes most of the margin of error only if the rules which apply to all companies are appropriate. GlaxoSmithKline [GSK], a pharmaceutical company, spends in all about £3,500 million a year on research. Under the rules, it writes it all off as an expense in the year it spends the money.

Pure research may be so remote from earning revenue that matching makes little sense and expensing it at once may be the best approach. That is not to say that profit-seeking companies are wrong to spend money on pure research. According to a recent study, 'companies fund pure science because ... they find it highly profitable.' (Kealey, 2008, p. 299) But for accounting purposes, it is hard to predict which expenditure will produce returns, and when. Kealey says: 'By definition, research is unpredictable because if it were predictable it would not be research.'

But what about applied research? It may be that GSK is quite likely not to recover (say) £1,500m of the £3,500m. But the remaining £2,000m may be on track to be successful. Perhaps not every single project will succeed both technically and commercially, but treating the £2,000m as a 'portfolio' of projects, GSK may be confident that in the end it will recover at least the whole £2,000m out of total sales proceeds.

Let us suppose it has been the same for each of the last ten years. In that case it might be perfectly sensible, to capitalise the £2,000m each year and (assuming an average ten-year life) write off 10 per cent a year by way of amortisation (depreciation of intangible fixed assets). That would also match the spending better with revenue. Ignoring amounts spent earlier, GSK's 'applied research' asset would then build up as shown in Table 2.4.

Table 2.4 Possible build-up of GSK 'applied research' asset

End year	Capitalised each year	Cumulative capitalised	Amortisation in year	Cumulative amortisation	End of year net book value
	£m	£m	£m	£m	£m
1	2,000	2,000	200	200	1,800
2	2,000	4,000	400	600	3,400
3	2,000	6,000	600	1,200	4,800
4	2,000	8,000	800	2,000	6,000
5	2,000	10,000	1,000	3,000	7,000
6	2,000	12,000	1,200	4,200	7,800
7	2,000	14,000	1,400	5,600	8,400
8	2,000	16,000	1,600	7,200	8,800
9	2,000	18,000	1,800	9,000	9,000
10	2,000	20,000	2,000	11,000	9,000
11	2,000	20,000*	2,000	11,000	9,000

*Year 1 now 'written out'.

After ten years a steady state is reached, with the annual amortisation expense of £2,000m exactly equalling annual spending on applied research. The impact on the profit and loss account is the same in the end, but the net book value of assets is £9,000m higher, *about one third* of GSK's stated total 2006 assets. This seems rather a large 'margin of error' with respect to assets, which illustrates the extent of the potential conflict in this area between prudence and matching.

There might be little impact on profit for a stable mature company, but for a growing or a new company, capitalising some applied research in this way could significantly increase reported profit for a time. On the other hand, most companies spend much less on R&D than GSK's 15 per cent of sales.

b. Staff training

Several problems arise with staff training and development. First, spending the money may not provide much benefit to the employer, in the same way that teaching may not always result in much learning. (I can say this now that I've retired from teaching in a management school!) Second, even if there is likely to be some benefit, how long will it last? The value of training may be rather like the value of purchased goodwill, evanescent if not continually 'topped up' later (see Chapter 3, section 6).

Third, even if there is long-lasting benefit, will employees continue working for their current employer to deliver it, or will some of them subsequently move to other employers? This is not a legal question – a company clearly doesn't 'own' its employees – but a practical one. Companies normally want *specific* training for their staff, so that *they* get most of the benefit; while employees may prefer 'general' training, as a rule, which could benefit their own careers and which they could transfer to other employers.

Because of these problems, accounts nearly always expense all costs of staff training and development in the current period. As a result they may somewhat understate profits compared with an alternative approach. But it is hard to believe that this is often material, especially if the level of spending is consistent.

c. Advertising

There is another kind of spending which can be hard to allocate between accounting periods. Under the matching concept, it clearly makes sense to treat advertising as a current expense if it aims only to increase current sales. But a major campaign right at the end of the

current period might relate partly to hoped-for sales in the next period; and this could perhaps justify treating part of the amount as a pre-payment. (But there is a difference between 'hoping' and 'expecting'.)

But what about a possible longer-term effect? What if a company expects spending on advertising to increase the value of a brand, to some unknown extent, thus providing longer-term future benefits? (This is important in certain industries.) Should it capitalise part of the cost (increasing the cost of the brand on the balance sheet) rather than expense all the spending currently? The famous saying that 'half of all advertising is wasted, but one can't tell which half' scarcely inspires confidence in the reliability of doing so. In practice, given the uncertainty, financial accounts would normally still expense the whole amount in the current period. As with some previous examples, a consistent policy is unlikely to have much net impact on the amount of reported profits, but the cumulative impact on the balance sheet might be larger.

The question may be more relevant to internal management accounting, where it may affect the decision whether to spend the money at all. For here the concept of prudence need not apply. Indeed commercial brand management would seem to require some kind of 'valuation' process from time to time. And internally the distinction between an 'expense' (= a write-off) and an 'investment' (= an asset) may be less vulnerable to spin.

7. Taxation

a. Current

The rules concerning the taxation of company profits are complex; and there may be doubt about how some rules apply to specific items. So even if the rates of tax are known in advance, the amount to provide for tax payable on profits is nearly always only an estimate. Companies will not have agreed to the corporation tax assessment at the date they 'finalise' the annual accounts. Indeed the assessment will be largely based on those accounts.

In more complex accounts agreeing the amount of the assessment can often be to some extent a process of negotiation, whose outcome may be far from certain. A random sample by the Inland Revenue (*Financial Times*, 31 January, 2006) suggested that four out of ten corporation tax returns were incorrect, mostly understating the amount of tax due. The research noted *sixty* different main types of error – which fact itself hints at the complexity of corporate taxation.

The tax expense in company accounts will not normally equal the reported profit before tax times the tax rate, for a number of reasons. Some business expenses are simply not deductible for tax purposes, for example, depreciation of office buildings and certain legal expenses. Any genuine expenses disallowed in computing taxable profits increase the 'effective rate' of company taxation on actual profits. Another reason is the way that deferred tax works. And many groups of companies, which earn part of their profits overseas, are liable to foreign tax, often at different rates from the UK.

As a result there is nearly always some margin of error in the tax charge, and therefore some tax adjustment from previous years; and these adjustments, which may involve several years, can be large. For example, in 2006 both British American Tobacco and GlaxoSmithKline had tax adjustments relating to previous years amounting to about 10 per cent of the tax charge (i.e. around 4 per cent of after-tax profits). Vodafone is involved in a long-running dispute over tax relating to its Mannemann acquisition some years ago. The tax at stake is said to amount to £1.7bn (*Accountancy Age*, 29 May 2008).

One problem is that although one can exclude such tax adjustments from the year to which they do *not* belong, it is usually impossible for an outsider to know which year(s) they *should* be allocated to, which companies rarely reveal. Moreover, if the reported profit before tax is 'wrong' in some sense (for one or more of the many possible reasons discussed in this book), that may well mean that the tax charge is 'wrong' too.

b. Deferred tax

The tax expense charged in a period is not the same as the *actual tax liability* in respect of a company's profit for that period. It would be the same under the so-called 'flow-through' method, which some people advocate; but IAS 12 requires companies to include deferred tax in the tax expense charged. This allows for timing differences between reported accounting profit and 'taxable profit', often stemming from depreciation allowances for tax purposes exceeding the charge in the accounts. The resulting deferred tax 'liability' – which is not a legal debt – appears on the balance sheet under long-term provisions for liabilities and charges.

There is more than one way to calculate how much deferred tax to charge, sometimes requiring rather complex assumptions. Broadly it is the difference between the legal tax payable for a period and what the tax charge 'would have been' if there were no timing differences. Permanent differences are ignored. In the UK the timing difference

between book depreciation in accounts and writing down allowances for tax purposes has reduced in recent years; and in many countries corporate tax rates have fallen thanks to healthy 'tax competition' (see Teather, 2005). So deferred tax is often not nearly as large now as it used to be.

Deferred tax will not become payable in cash until the timing differences unwind at unknown dates, possibly many years in the future. So the question arises whether to *discount* the amounts, and, if so, at what rate. IAS 12 forbids discounting, which would (present) 'value' the deferred tax and could make a big difference to the amount. On the other hand FRS 19 permits discounting, which suggests some unfinished business in the process of 'harmonising' accounting standards.

8. Conclusions

The interim-ness of annual accounts can lead to a number of errors with respect to reporting profits. Depreciation of tangible fixed assets will rarely be precisely correct, because it is difficult to estimate their lives; but as a rule the errors should not be large (except for costly unique assets). This is for two main reasons: errors in unbiased estimates may tend to cancel out over time, while consistent errors in one direction are open to future correction.

Assessing the future outcome of long-term contracts can give rise to large errors; but measuring the cost of most trading stocks, while not always straightforward, should not normally result in major discrepancies. Judging how much (if at all) to write down the cost of stocks can be difficult, as can providing for bad debts. In a trade downturn both can lead to large margins of error. Provisions generally may not always be easy to assess, while contingencies can lead to large errors, both as to timing and amount.

Current accounting standards require companies to write off pure and applied research as expenses when incurred. This may be prudent, but may do a poor job of 'matching'. Taxation charges are often difficult to estimate and can result in large margins of error to after-tax profit.

Some items may be unlikely to affect reported profit much, while possibly leading to large *balance sheet* differences. These include: capitalising interest on self-constructed fixed assets; writing off research costs as expenses where a portfolio approach might justify treating part of them as a 'research asset'; and possibly failure to capitalise part of promotion costs which contributes to increasing (not just maintaining) brand values.

3
Basis of Measurement

What is a cynic?
A man who knows the price of everything and the value of nothing.
Oscar Wilde

The 'historical cost' (HC) approach, showing assets in the balance sheet at cost less amounts written off, has dominated commercial accounting for nearly two centuries. During that time the existence of a practical reliable system of accounting for business enterprise has contributed importantly to economic prosperity in many countries.

In recent decades, however, alternative approaches to accounting measurement have been gaining ground, using some version of 'current value' (CV). Precise details of current value methods vary, as do their names: current cost, discounted cash flow, fair value, market value, realisable value, replacement cost.

The method used to measure assets can make a big difference, both to the balance sheet and to the profit and loss account. Which approach is preferred depends partly on whether there is a genuine 'market' yielding authentic 'market prices' and partly on whether one regards the main purpose of company accounts as stewardship or 'decision-usefulness'.

1. The purpose of accounts

One of the key questions affecting the basis of measurement in company accounts is their *purpose*. I believe there are five main purposes:

- to enable shareholders to monitor the performance of managers
- to show how much profit is available to pay out in dividends
- to provide a basis for governments to tax corporate profits

- to underpin contractual arrangements, including management bonuses
- to help lenders and suppliers make decisions about providing finance.

The law says the primary aim of company accounts is to report on stewardship, to enable (existing) shareholders to assess the performance of their company and its managers. To this end, recognising sales revenue only when realised and using actual past cost for assets and expenses, has generally proved adequate. Accounts have shown assets at cost as a *maximum*: they depreciate tangible fixed assets, value stock at the lower of cost and net realisable value, and show debtors net of provisions for bad debts. Especially when HC accounts use valuations lower than cost, for stocks and debtors, and when they depreciate fixed assets, margins of error start to appear.

If accounts are seeking to report on the stewardship of managers, then historical cost has much to commend it. It keeps track of an entity's resources; and compared with a current value system it is less costly to operate and provides data that are less open to dispute. This matters since even if accounts report mainly to existing shareholders, others (such as tax officials and lenders) also use them. In some respects financial statements have gradually been moving from amounts based on legal 'form' towards economic 'substance', for example, with respect to long-term leasing of fixed assets.

Over the past generation there has been a growing emphasis on 'decision-usefulness' instead of 'stewardship'. The idea is that the main aim of company accounts should be to help investors decide whether to buy or sell equity shares in listed companies. 'Decision-usefulness' for shareholders might be relevant as an aim for the accounts of listed companies whose shares are traded on a stock exchange; though whether backward-looking accounts of individual companies are really likely to be much help in this regard must be open to question.

After all, the vast majority of publicly-listed shares are held, not by investors in a single company, but in *portfolios*, which can diversify away most of the unique risk of specific companies. Presumably neither short-term speculators nor long-term investors often use annual accounts to help them make decisions. In addition, shareholders in private companies are not usually seeking to trade their shares and most other entities preparing accounts have no 'shareholders' at all.

The emphasis on decision-usefulness seems to reflect what some people think accounts *ought* to be about, while the stewardship approach better represents what most people think actually is the real purpose of accounts. Whereas decision-usefulness involves hypothetical estimates

about the uncertain future, the stewardship approach tries to report what has actually happened in the past. A draft of the UK Accounting Standards Board's 'Statement of Principles' (ASB, 1995, p. 9) noted: 'The objective [of financial statements] has been revised to include a specific reference to [their] use ... for assessing the stewardship of management.' It speaks volumes about the ASB's attitude that it included 'stewardship' as an afterthought.

Annual accounts report to shareholders about corporate performance and financial position. They are not prospectuses inviting people to invest in the company's equity shares. Part 15 of the 760-page Companies Act 2006 deals with Accounts and Reports, while the rules on prospectuses are no longer even in the Companies Act, but appear in the separate Financial Services and Markets Act 2000. Nor do balance sheets, even when they show the current values of individual assets, purport to 'value' whole companies. Thus the American term 'net worth', for equity, has always been a misleading expression.

The IASB's 'Framework for the Preparation and Presentation of Financial Statements' in 1989 said: '...further harmonisation can best be pursued by focusing on financial statements that are prepared for the purpose of providing information that is useful in making economic decisions ... [which] meet the common needs of most users ... because nearly all users are making economic decisions, for example, to:

a. decide when to buy, hold or sell an equity investment;
b. assess the stewardship or accountability of management;
c. assess the ability of the entity to pay and provide other benefits to its employees;
d. assess the security for amounts lent to the entity;
e. determine taxation policies;
f. determine distributable profits and dividends;
g. prepare and use national income statistics; or
h. regulate the activities of entities.'

Four of the above, b, c, d and f, roughly match 1, 4, 5 and 2 respectively of the five 'purposes' of company accounts suggested at the start of this chapter. I do not believe that a, e, g and h are important purposes of company accounts; indeed the last three seem to refer to *government* users, who are surely not 'making economic decisions' based on the accounts of individual companies.

A further problem is that the (US) Financial Accounting Standards Board's hierarchy of qualities of accounts 'all flow from the overriding

objective of providing accounting information useful for decisions. They therefore suffer from our lack of understanding of the models used for decision-making.' (Bromwich, 1992, p. 287) In other words, the FASB doesn't know what it is talking about! 'One feature that is striking about this apparent support for decision-usefulness is the fact that the studies themselves do not generally cite any empirical evidence either about decisions or about users.' (Mumford, 1993, p. 12)

The Trueblood Committee (AICPA, 1973), which was influential in the FASB's Conceptual Framework project, suggested that financial statements should help investors to predict, compare and evaluate potential cash flows to them in terms of amount, timing and related uncertainty. But Paterson (2001, p. 101) pointed out: 'Although facilitating the prediction of future cash flows is certainly an important use for accounts, it is not their primary use. A faithful account of the results of an expired period is the first thing that many users want, and it is unlikely to be provided by an approach that concentrates on the unknown future to the neglect of the relatively verifiable past.'

In 1990 the seven FASB members comprised three Certified Public Accountants [CPAs] from public practice, two preparers of accounts, one academic and one user of accounts. But Gore (1992, p. 97) pointed out that the so-called 'user' was Clarence Sampson, the ex Chief Accountant of the SEC. It seems very strange to include an ex-regulator as the sole 'user' representative, especially if decision-usefulness for users is supposed to be the main purpose of accounts. Of the IASB's 14 initial members in 2001, only two could be described mainly as 'users' of accounts, even though the International Accounting Standards Committee's [IASC] constitution called for at least three (Flower and Ebbers, 2002, p. 258).

Those who prefer decision-usefulness to stewardship as the main purpose of accounts often argue that accounts should use not actual cost but estimates of current values, which they believe reflect 'economic reality'. Such an approach focuses on how investors use their money, rather than on corporate and management performance. It also implies a forward-looking emphasis, in contrast to backward-looking stewardship accounts. One difficulty is that value is subjective, so the question arises: *whose* 'value' to use in 'current values', especially if there isn't a market for the assets concerned. David Damant, a strong supporter of the new approach, has suggested that 'financial statements prepared according to international standards will be unintelligible to all but a few' (*Financial Times*, 6 June 2002). It is hard to see how this can help promote decision-usefulness.

2. Realised and unrealised profits

One distinction between 'historical cost' (HC) and 'current value' (CV) accounting, relates to unrealised profits. HC accounting includes two kinds of profit which have both been *realised* in the current period: one accruing in the current period and the other accruing in earlier periods. In contrast, CV profit comprises two kinds of profit, both *accruing* in the current period: one realised in the current period and the other still unrealised, but expected to be realised in future periods.

As a rule HC accounts are conservative and recognise sales revenue, and therefore profit, only when it is realised, either in cash or in a legally enforceable debt. In consequence part of reported HC profit before tax is available to pay corporation tax on taxable profits; and part of HC profit after tax is available to pay cash dividends to shareholders. Neither is necessarily true of CV accounting.

Figure 3.1 shows the relationship between the two different concepts of accounting profit. The central and left-hand rectangles represent HC profit realised in the current period while the central and right-hand rectangles represent CV profit accruing in the current period.

The longer the period, the more important is the common factor (the central rectangle) – realised profit accruing in the current period – and the less the difference between HC profit and CV profit. In other

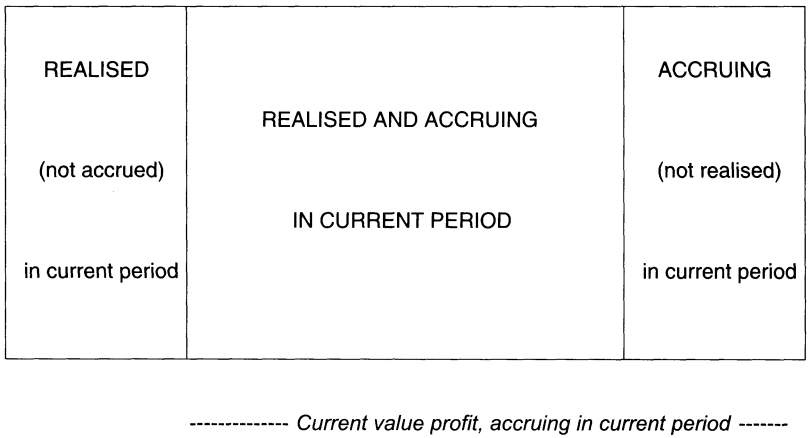


Figure 3.1 Realised and accrued profit

words, the *shorter* the accounting period the greater the proportionate difference between HC profit and CV profit.

Waiting until the sale of some assets before recognising profit can lead to potential accounting problems. For instance, a company with unrealised capital gains on a holding of quoted securities can normally arrange to sell those securities whenever it chooses. Thus, by delaying the sale, it can affect the timing of reported profits. (On the other hand, unrealised capital gains cannot always be relied on: they can melt away very quickly if conditions change.)

Supporters of HC accounting argue that the existing concept of realisation may be safer than the proposed concept of valuation, as regards both *when* to recognise profit and also *how much* to recognise. They think it often extremely tricky to measure the 'market values' of many specific business assets, especially those in either a partly-used state (depreciable fixed assets) or in a partly-completed state (production work-in-progress). There may be no representative market for such assets, hence really no such thing as a 'market' value.

Advocates of CV accounting claim that dropping the realisation principle makes it both more consistent and more relevant than HC accounting. (More consistent in that HC accounting, being prudent, measures stocks of goods for sale at the *lower* of cost and net realisable value.) CV accounting contains the current values of discrete assets (and maybe liabilities) that conventional accounts show at historical cost (less amounts written off). But CV deals only with resources that accounts already include. It does not attempt to value the business as a whole. Thus CV too fails to account for many of a business's intangible resources which may well have economic value, such as 'goodwill'.

Moreover the current value of a whole business partly depends on how it *combines* different assets. Hence the most valuable capital 'investment' may consist not of acquiring new capital assets, which will increase the amount of individual assets on the balance sheet, but merely of rearranging more productively those assets which a business already owns. This, however, will *not* affect the amount of the assets in a balance sheet, under either HC or CV accounting.

3. Technical aspects of Current Value accounting

a. Operating gains and holding gains

Operating gains represent the excess of the proceeds of selling trading resources over their 'current costs'. Holding gains represent an increase in the current value of resources a business holds during a period. If an

asset's current value increases over time, the owner builds up unrealised holding gains until finally realising them when selling the asset (or selling the whole business). Including holding gains as profit in accounts when they *accrue* (CV accounting) instead of when they are *realised* (HC accounting) affects the *timing* of when accounts recognise income, not its total amount over a company's whole lifetime.

Holding gains are of three kinds:

- Stock gains represent increases in current values of stocks, leading to later higher expense (lower profits) in respect of the 'current' cost of goods sold.
- Fixed asset gains represent increases in current values of depreciable fixed assets, leading to later higher depreciation charges (lower profits) as the asset is used up.
- Capital gains represent increases in current values of non-depreciable fixed assets, leading to later lower capital gains on realisation.

Advocates of current value accounting often think it a big advantage to distinguish between operating gains, which they claim are subject to management control, and holding gains, which they say are less so. In practice, however, the degree of management control may vary widely between businesses. And holding gains and operating gains are not really unrelated: '...changes in resource prices will result in trade-offs between holding and operating performance.' (Drake and Dopuch, 1965, p. 202)

The Sandilands Committee (1975, para. 162) admitted that 'for the limited purpose of stewardship it is probably most useful to regard as profit all the gains which a company makes during the year ...'; and proposed a statement of 'total gains' which would include holding gains. But later versions of Current Cost Accounting [CCA] dropped this. Vancil (1976) suggested excluding holding gains from the profit and loss account only if a company was 'committed to its existing line of business'; but such a criterion would be difficult to apply in practice, and for most companies would be a matter of degree.

In fact CCA as proposed in SSAP 16 was full of ambiguities, inconsistencies and subjective judgements – for example, whether some kinds of purchasing are 'abnormal'; which monetary assets to include for purposes of the Monetary Working Capital Adjustment; which price index to apply to such items; how to calculate the Gearing Adjustment; and even whether a particular industry was 'appropriate' for CCA or not. All that could have led to many significant errors.

Why bother to separate operating gains from holding gains at all? Edwards and Bell (1961, p. 224) thought that otherwise managements might casually project current reported profits into the future, and make incorrect replacement decisions if prices had risen. This seems unlikely, however, in an ever-changing economy; nor do modern methods of investment appraisal depend much, if at all, on current reported profits.

Sandilands (1975, para. 168) suggested that operating gains are more controllable by a business than holding gains. But why suppose that a business is able to control its sales revenues (both quantities and prices) but not its purchase costs? It seems quite artificial to distinguish between holding gains due to 'lucky or skilful buying' and operating gains due to lucky or skilful selling. Due to lucky or skilful accounting, however, later versions of CCA dropped this foolish proposal.

b. Replacement cost versus realisable value

Now we compare two different versions of current value accounting. Replacement Cost (RC) accounting uses current 'entry values' of assets owned, showing how much would it cost now to acquire these assets in their current form. Technical changes may mean that a company will never precisely 'replace' a specific asset. The question then arises whether RC accounting should estimate the current cost of an exact replacement of such an asset or use the current cost of an asset which would provide 'equivalent' services.

Whether holding gains are 'profit' or not depends on how one defines 'capital'. If capital means 'initial money capital' (ignoring inflation), then we *should* count holding gains as profit. But some advocates of RC accounting prefer to regard capital as the *physical resources* of the business, not as a *financial* amount. Hence they would *not* count holding gains as profit, since a company will 'need' to incur the increased replacement cost (which causes the holding gain) when (if?) it replaces a specific asset. The holding gain does not represent an increase in the *physical* resources of the business; hence it should count not as profit but as a capital maintenance adjustment.

One snag with this approach is that if you buy something cheap and sell it dear, most people would say you've made a profit. But supporters of RC accounting could not tell whether you've made a profit or not until they know the replacement cost. They seem to be *assuming* you will replace the asset *whatever* its replacement cost, which makes little business sense.

Realisable Value (RV) accounting uses the concept of opportunity cost, by valuing assets at what a company foregoes by choosing to hold assets rather than sell them. Its advocates claim that using current 'exit values' of assets is the most relevant information for managers. Choosing *not* to sell an asset, they say, is just as much a business decision as deciding to buy it in the first place, though the opportunity cost is hypothetical and may be impossible to verify.

A similar approach destroys the logic of penalising insider trading, for it implies that the insider who decides *not* to trade, as a result of his inside knowledge, is just as culpable as one who *does* trade. But even George Orwell, with his notion of 'thoughtcrime', would hardly dare suggest the state should penalise such 'insider non-trading'.

Advocates of RV claim that, once the decision to hold resources in their present form has been made, 'entry values' (replacement costs) reflect a static position, assuming replacement of those same resources in due course. In contrast, they say, using 'exit values' reflects the flexibility of cash (actual or potential). At the same time they see including unrealised gains in profit as an advantage over HC accounting.

But there is a problem with highly specific assets whose resale value is much lower than the value of their expected future returns. Should the 'exit values' in RV accounting be their immediate liquidation value, or amounts based on expected future trading returns?

4. Implications of Current Value accounting

a. Margins of error in 'current value'

Some people seem to assume that the only relevant difference between historical cost and current value is that the former is out-of-date. 'Historical cost' is *past*, while 'current' (or 'fair') value is *current*. But 'cost' and 'value' are not the same thing. Cost is what you actually pay for something, value is the most you would be *willing* to pay.

The amount of money paid for something does not, *even at the date of purchase*, represent its current 'value'. A buyer is willing to pay a specific price for something because he values it at a *higher* amount. Likewise the seller values it at *less* than the price he asks. Thus as a rule *both* parties to voluntary market transactions expect to make a profit (though mistakes are possible). Goods are *not* of 'equivalent' value to the money they exchange for: hence neither party to a market transaction would normally be willing to *reverse* it. (Menger, 1981, p. 193)

Figure 3.2 compares the value to the consumer (at the top) and the cost to the producer (at the foot). The difference between the two is the total 'margin', which gets split between profit to the pro-

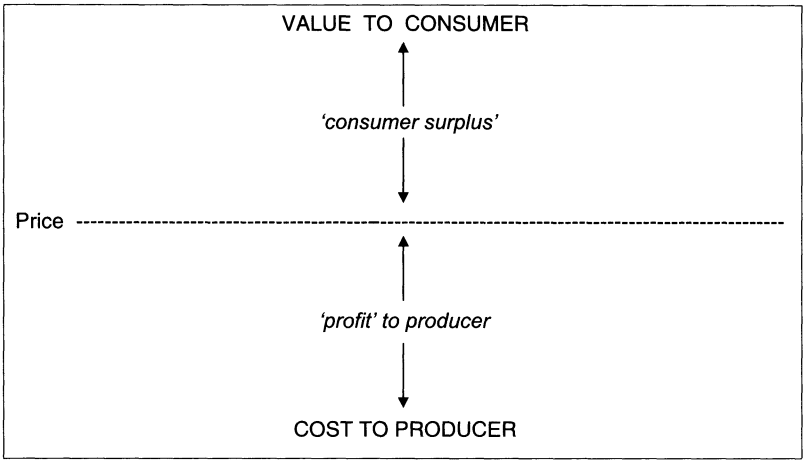


Figure 3.2 Sharing the surplus of value over cost between consumer and producer

ducer and what is called 'consumer surplus'. The latter is simply the excess of the *value* to the consumer over the price he actually has to pay.

The contrast between cost and value accounting came to the fore during the debate about inflation accounting in the 1970s. The government (Sandilands) committee proposed a current value system which it called Current Cost Accounting [CCA]. This name was a clever choice: the word 'current' promised up-to-dateness, while using the word 'cost' implied continued soundness.

The Sandilands Committee (para. 606/612) proposed a notably cavalier approach to accounting for fixed assets. Its CCA system would have charged depreciation of fixed assets in end-of-year pounds while all other expenses were in average-for-the-year pounds. The report argued that: '... the margin of error ... will be outweighed by the practical convenience.' But inflation was running at 25 per cent a year in 1975, when its report appeared, so the discrepancy (for this reason *alone*) could easily have been more than 10 per cent.

Intangible assets have become much more important in recent years, and an increasingly significant reason for margins of error in accounting (whether HC or CV). Indeed *tangible* assets often now represent well under 50 per cent of the market value of a company's shares. Measuring the cost of specific intangible assets can be difficult: they may represent only a proportion of spending on 'revenue investments' such as research. And trying to determine the 'cost' of something as vague as a

firm's reputation, which may well be very valuable, would seem to be out of the question. Yet intangible assets can also be extremely difficult to *value*, either because they are unique, or hard to define, or because there is no 'market' in which to trade them. A recent discussion paper on valuing heritage assets (such as Stonehenge) highlighted this problem.

Another important difference has escaped the attention it deserves: historical cost is a more or less objective *actual* fact, whereas current value can be no more than a *hypothetical* estimate. Those who claim that fair values represent 'economic reality' may sometimes be fooling themselves, as many banks now know only too well.

Littleton (1929, pp. 149/50), an accountant, says:

> ... value is a vague sort of thing, subject to all the whims of mankind and turned by the least wind of altered circumstances... Whereas value is an estimate of what price ought to be, price itself is an established fact... When accounting is loosed from this anchor of fact it is afloat upon a sea of psychological estimates...

Gerald Loeb (1965, p. 14), a writer on investment, says:

> Market values are fixed only in part by balance sheets and income statements; much more by the hopes and fears of humanity, by greed, ambition, acts of God, inventions, financial stress and strain, weather, discovery, fashion and numberless other causes impossible to be listed without omission.

Shackle (1972, p. 8), an economist, says:

> Valuation is expectation. What is vital is that expectations are conjectures, let us say *figments*, resting on elusive, fragmentary and confusing evidence whose interpretation and suggestion can change from moment to moment with no visible cause.

As George O. May, an expert accountant, said to Sidney Alexander, who was arguing for the 'economic' concept of income based on expectations (see Chapter 5 below): '... you have an imaginary market; you have an imaginary value, and you get about the fifth degree of imagination into your concepts. ... That brings me to the conclusion that your excursion has been valuable to us, because it shows we must go to another road.' (Study Group, 1973, p. 224)

Estimates of current values can vary greatly in reliability. There is often likely to be a large margin of error, especially where they involve discounting future cash flows (see also Chapter 5, section 1a). Guessing the amount and timing of possible future cash flows for many years ahead is not at all easy. And choosing a suitable discount rate to use is also very tricky; but even a small variation in discount rate can make a big difference to 'present [= current] value'.

For example, the Stern Report on climate change (Stern, 2006) used, on 'ethical' grounds, a pure time discount rate of only 0.1 per cent a year. (The Report interprets this, bizarrely, as implying a nearly 1 in 10 chance of the human race not surviving 100 years.) This eccentric approach was critical to the Report's alarmist conclusions. A more conventional pure time discount rate, based on the yield on risk-free UK government securities, would be, say, 2.0 per cent a year. The present value of a disaster costing £100 billion at the end of 100 years would be £90 billion using 0.1 per cent a year, but only £14 billion using 2.0 per cent a year. So the choice of discount rate can make a huge difference, and justify very different policies.

Reporting assets at estimates of current values which may *exceed* cost could involve the danger of basing profits on hypothetical guesses. Certain fungible assets, such as quoted shares, may seem to have a definite market value which is easy to determine (though valuing even listed shares at apparent market prices can have problems – see Chapter 7, section 2d). So it may seem sensible to value such assets on the balance sheet date at the current marginal market price; and to report *unrealised* profits as well as realised ones.

The IASB defines 'fair value' as the amount for which knowledgeable, willing parties in an arm's length transaction could exchange an asset or settle a liability. But unless business assets are commodities (more or less perfect substitutes for each other) there will usually be a *range* of market values – depending on such matters as the relative bargaining position of buyer and seller, location, precise quality, etc. It is a mistake to assume that in practice every asset has a single market quotation which can easily establish 'fair value'.

A valuation may try to reflect either the *actual* asset's hypothetical current market value, or the *actual* current market value of a supposedly identical asset. Both are subject to big margins of error. Indeed 'fair value' sometimes depends not on an actual market at all, but on a model of how market prices develop. In practice 'marking to market' can become 'marking to model' (which is prone to serious error). 'This week AIG, the US insurance giant, announced about $5 billion of writedowns

after it adjusted some of the assumptions it used to value certain securities linked to subprime loans.' (*Financial Times*, 14 February 2008)

In the early 1990s, Enron was keen to use 'mark-to-market' accounting. Indeed Jeff Skilling, then a McKinsey partner, apparently told Ken Lay he wouldn't join Enron *unless* they could use it (McLean and Elkind, 2003, p. 39) The company managed to convince the auditors, Arthur Andersen, who, however, said the SEC had to approve too. At first the SEC would not agree; but Enron organised a presentation by Skilling, then CEO of Enron Finance. According to Eichenwald (2005, pp. 54–61), Skilling argued: 'Accrual accounting lets you pretty much create the outcome you want, by keeping the bad stuff and selling the good. Mark-to-market doesn't let you do this.'

This was a clever argument, and it seems to have convinced the SEC. It is true that reporting only *realised* profits may tempt managers to *time* sales of assets in order to affect reported profits. But the apparent advantage of 'mark-to-market' accounting, able to include hypothetical 'profits' which may not actually be realised for many years into the future, depends critically on the existence of a genuine market. A well-known sign of risky accounting is a continuing large gap between reported profits and cash flows. And even if a company is 'keeping the bad stuff', under accrual accounting the prudence convention requires an immediate write-down to estimated current value, if that is below cost; so Skilling's implication is not necessarily correct.

Many business assets comprise partly-used (second-hand) tangible fixed assets. These may have neither a willing seller nor a willing buyer; so any purported 'market value' can only be a guess, as no regular market exists. Indeed many fixed assets may rarely be sold at all, except as part of a going concern or when worn out. Even assets such as trade debtors are specific, so their 'current value' is not easy to determine. The chance of a bad debt is a matter of business judgement, not simply of fact.

Many professionals concerned with company accounts, whether managements, analysts or investors, have seemed reluctant to place much reliance on various kinds of 'current value' accounting. Perhaps the most notable casualty was Current Cost Accounting, which was widely ignored in the 1980s even though there was an accounting standard *requiring* its use! A Sandilands survey (paras. 401/3) found more support for Constant Purchasing Power accounting, a form of historical cost, than for CCA (see Chapter 4). And an Accounting Standards Committee [ASC] working party (ASC, 1983, para. 4) reported that: 'Many of those who were originally enthusiastic supporters of CCA

have lost their enthusiasm in the light of their experience of SSAP 16.' This was probably because the costs were higher and the benefits lower than people had hoped.

The Sandilands Report (paras. 208, 219 and 530) accepted that '... the "value to the business" of a company's assets is clearly not a figure capable of precise and objective verification in the same way as the historic[al] cost of assets.' After some discussion it concluded that 'the value of an asset to a company is the written down replacement cost ... except in situations where [that] is higher than both the "economic value" and the net realisable value, in which case the value of the asset to the company is the "economic value" or the net realisable value, whichever is the higher.' The Report said: 'We do not pretend it is easy to value tangible assets on any one of these three bases.'

b. Possible impact on reported profits

Stewardship accounting calculates profit by measuring the amount of sales revenue earned in a period and then deducting expenses (matching where possible). The balance sheet may sometimes contain left-over items, such as deferred taxation. The new accounting standards, based on 'decision-usefulness', require balance sheets to contain only 'assets' and 'liabilities' as defined by the Statement of Principles. (In fact, however, this is not always so: for example, deferred taxation is not legally a liability, nor does internal goodwill count as an asset under IAS 38.)

The accounting standard-setters now seem to be moving towards the current value approach. Among other things, this could mean valuing unsold stocks of goods at 'market prices' and recognising profits before the goods are sold. In the end the logic of this approach suggests that profit will be determined by deducting shareholders' equity in one balance sheet from shareholders' equity in the next. (This is somewhat similar to the 'economic income' approach discussed in Chapter 5.) But changes in estimates of fair values of assets could lead to very large variations from year to year in both shareholders' equity and reported profits. These margins of error will *not* be transparent.

Putting it bluntly, differences in dubious asset values can easily lead to reporting dubious profit or loss figures. For example suppose (to simplify) that a company pays no dividends and raises no new capital for two years. The book value of shareholders' funds was £1,000m at the end of Year 1, £1,100m at the end of Year 2, and £1,250m at the end of Year 3. On the face of it, using the 'equity deduction' approach, the company made a profit of £100m in Year 2 and £150m in Year 3.

Table 3.1 Possible margins of error basing profits on differences between valuations of shareholders' funds

£ million	Shareholders' Funds			Reported profit (loss)			Profit variance	
	Min.	Central	Max.	Min.	Central	Max.	Amount	Per cent
2% margin of error								
Year 1	980	1,000	1,020					
Year 2	1,078	1,100	1,122	58	100	142	+/– 42	+/– 42
Year 3	1,225	1,250	1,275	103	150	197	+/– 47	+/– 31
5% margin of error								
Year 1	950	1,000	1,050					
Year 2	1,045	1,100	1,155	(5)	100	205	+/– 105	+/– 105
Year 3	1,188	1,250	1,312	33	150	267	+/– 117	+/– 78

But Table 3.1 shows the possible variances in shareholders' funds and reported profits if the margin of error in total shareholders' funds each year was either 2 per cent or 5 per cent.

If there were only a 2 per cent margin of error in shareholders' funds each year, as shown in the top half of Table 3.1, the possible percentage margins of error in profit would be 42 per cent in Year 2 and 31 per cent in Year 3. This phenomenon seems very similar to that relating to extremely volatile fluctuations in the balance of payments figures in the days of fixed exchange rates: the 'balance' resulted from comparing two much larger totals for imports and exports and a small percentage change in either could cause an enormous change to the difference between them.

A 5 per cent margin of error in shareholders' funds could produce a wide range of possible variance in profits:

	In Year 2	In Year 3
(a)	£5m loss	£267m profit
(b)	£205m profit	£33m profit

So Year 3's profit could be £272m higher than Year 2's profit, or £172m lower. The possible profit variances amount to 105 per cent in Year 2 and 78 per cent in Year 3. Potential swings of these magnitudes seem alarming.

When the 'fair value' approach was first introduced, the idea was that trading profits or losses might go in the profit and loss account [income statement], while in the UK 'gains' (for example on revaluing

assets upwards) might go in the Statement of Recognised Gains and Losses [STRGL for short]. At least that would have highlighted the difference in quality of these different kinds of profits (or 'gains' as the standard setters seem to prefer to call them). It now seems, however, that there will end up being only a single profit and loss account, so the danger of confusion over the meaning of the numbers will be higher than ever.

5. Revaluation of tangible fixed assets

In the UK (and some other countries) companies are allowed to revalue tangible fixed assets upwards above their initial cost. (At one time this could be an *ad hoc* procedure; but now there has to be a definite policy, applying to whole classes of asset and updated at least once every five years.) This makes it hard to compare the accounts of companies which have revalued their fixed assets with accounts of companies which haven't.

Where UK companies do revalue tangible fixed assets upwards, they calculate future depreciation on the new amount. This has the effect of reducing reported profit, compared with depreciation based on cost. The amount of any increase in book value goes directly into 'revaluation reserve' on the balance sheet: it does not count as 'profit'. Such increases in value can be large. Recently Tesco plc announced that the market value of its fixed assets (mostly freehold properties) was 50 per cent higher than its book value (of £16 billion).

Suppose a company revalued its buildings halfway through their average life of 40 years; and that their gross money value has risen at *twice* the rate of inflation. Between 1987 and 2007, prices in general doubled (increased by 100 per cent). If the cost of the buildings in 1987 was £100k, in 2007 the revalued (gross) amount would be £300k. Straight-line depreciation would be £2.5k per year in the first 20 years of life [= 1/40 × £100k]; and it would increase to £7.5k per year in the second 20 years [= 1/40 × £300k]. A company which did not revalue would be charging £2.5k per year throughout. So revaluing can make quite a large difference to depreciation (of buildings); but for most companies this would make little difference to reported profits. The rate of Return on Assets would be *doubly* reduced, both by reducing 'Return' and by increasing 'Assets'.

Many UK companies have revalued buildings – especially after periods of high inflation – but not plant and equipment. Given the latter's much shorter useful life, the increase in depreciation expense

(and hence the reduction in reported profit) would be much greater for any given percentage upvaluation. There would be no change to the tax charge, so the impact would come straight through to profit *after* tax. A rare example of a company choosing to revalue its plant and equipment upwards (some years ago) was Guest Keen and Nettlefolds [GKN]; but analysts simply remarked on its seemingly poor profits (*after* charging the higher depreciation!), so the company soon abandoned its policy.

6. Goodwill

When one company acquires another, any surplus of the total cost over the 'fair values' of the various specific net assets acquired is called (purchased) 'goodwill'. It may be regarded as a 'premium' payable on acquisition. To begin with, the acquiring group's balance sheet shows this as an intangible fixed asset at cost. The modern practice on an acquisition is to try to distinguish other intangible assets (such as brands) from purchased goodwill. (Formerly it was normal for 'goodwill' to encompass them too.) According to IAS 38, para. 48: 'Internally generated goodwill shall not be recognised as an asset.', though some companies may now be doing this indirectly (see Figure 3.3).

At one time, under HC accounting, companies depreciated ('amortised') purchased goodwill to zero on the straight-line basis over its life, up to a maximum of 20 years. The logic of this is that the value of purchased goodwill will 'wear out' over time unless subsequent further investment 'tops it up'. Group accounts match the amortisation expense against the extra profits deriving from the acquisition. From the viewpoint of shareholders in the acquiring group, extra 'profit' from an acquisition would increase net profits only if it exceeded amortisation of goodwill. It is often hard to guess how long purchased goodwill would last on its own, without subsequent 'topping up', hence goodwill amortisation is normally subject to a large margin of error.

In my view, group accounts which fail to amortise any purchased goodwill over a finite period overstate group profit. The margin of error here can be large. Once UK accounting standards permitted it, most UK companies chose to write off purchased goodwill directly *against reserves* (not against profits). (Accounting standards 'overrode' the Companies Act's legal requirement to amortise goodwill – a distressing example of 'creative accounting' by the standard-setters themselves!) The effect was also, arguably, to *understate* shareholders'

equity by reducing it immediately by the *total* cost of purchased goodwill.

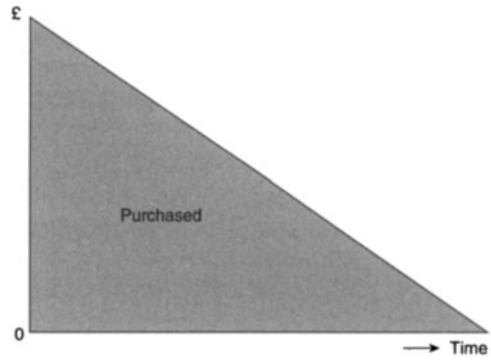
For example, GlaxoSmithKline [GSK] acquired Wellcome in 1995, for £9.5 billion, while the 'fair value' of specific separable assets was only £2.0 billion. Thus 'purchased goodwill' amounted to £7.5 billion. The company wrote the whole lot directly off against reserves in its UK accounts, but the US version of GSK's accounts amortised goodwill against profit over ten years. This quantified the 'error' in GSK's reported UK profit after tax at no less than £750 million a year. And it practically eliminated the entire amount of GSK's 'shareholders' funds' on the UK group balance sheet, which hardly sounds like 'a true and fair view'!

Under current accounting standards, goodwill stays on the group balance sheet, subject to an annual 'impairment review' to see if its value has fallen below cost. Only where there is any 'impairment' to the goodwill's book value in the accounts is there any write-off in the profit and loss account. It should be noted, however, that it is not now the cost of the *initial* purchased goodwill that is the focus of attention, but the estimated current value of the ongoing 'goodwill', as augmented by any subsequent investment. This may be very hard to guess if there have been subsequent intra-group reorganisations.

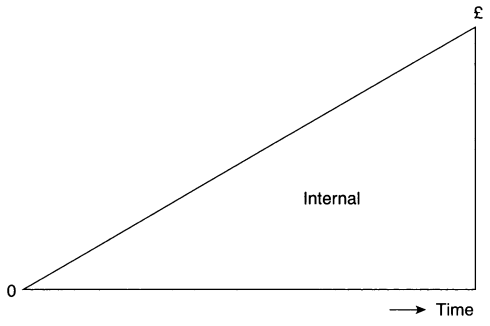
This new approach implies that goodwill may have an infinite life. (Accounting standard-setters seem to gloss over the distinction between an 'indefinite' life, which is finite but hard to determine, and an 'infinite' life, where the asset is expected to last literally for ever.) Guessing the *value* of goodwill is even more difficult than guessing its remaining life (which itself is not easy), so impairment reviews have a very large margin of error.

Reporting impairment of goodwill may imply that the purchase itself (or, at least, the price paid) was a mistake. Managers may be reluctant to admit this, and auditors may not be in a position to detect it, so impairment write-downs may also be subject to a 'margin of error' in their *timing* – possibly being reported in later periods than those in which the impairment 'really' occurred. This problem does not apply to systematic pre-set amortisation expense, which, of course, is a process of allocating cost over time, not of valuation.

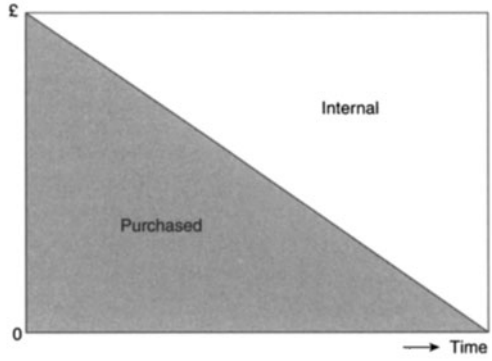
Figure 3.3 shows how some companies are now in effect capitalising part of the internally-generated increase in their goodwill by 'replacing' the expired portion of the cost of purchased goodwill.



(a) Cost and net book value of purchased goodwill, amortised over time



(b) Notional build-up of 'internal' goodwill



(c) Implied changing composition of apparently constant book value of 'goodwill'

Figure 3.3 Implied capitalisation of internally-generated goodwill

7. Cash and liquid resources

Morgenstern (1963, pp. 76–8) suggested that 'cash on hand' has a 100 per cent likelihood of being worth what the accounts show it at; whereas other assets will probably realise *less* than 100 per cent of their stated amounts. But this seems wrong: being an economist, he may not have been familiar with the accounting convention of 'prudence', under which balance sheets normally show 'other assets' at less than cost if that is their likely value – fixed assets net of total depreciation (though that is not strictly a 'valuation'), stocks at the 'lower of cost or net realizable value' and debtors net of any provision for bad debts. So there is no reason to assume that accounts normally show non-cash assets at more than they are worth.

Morgenstern proposed to multiply an asset's nominal amount by its chance of being worth at least that much; but he did not discuss in detail where you get the relevant 'probability factor'. If you would have to *guess* it, then that factor itself would be subject to some margin of error! Such factors originally came from frequency probabilities, as when throwing dice or playing roulette. But Knight (1965) distinguished between 'risk', where you know the odds, and 'uncertainty', where you don't. Using so-called 'expected values' in other fields of human endeavour can be tricky. For instance, Shackle (1969, Part III) suggests that the 'probabilities' of all the possible outcomes you can think of may add up to *less* than one – since you may have overlooked some possible outcomes!

Even with respect to 'cash' itself, several errors are possible:

- There may have been clerical errors in counting or reporting the cash total (usually the sum of several different amounts in various forms and accounts).
- Some cash accounts, especially if dormant, may simply have been overlooked.
- Some of the cash may be lost or stolen or otherwise embezzled.
- Any cash in foreign currencies has to be translated at (roughly) the proper exchange rates (see Chapter 4, section 4).
- In some countries there may be foreign exchange controls, making the amount and timing of ultimate realisation less than certain.

The run in September 2007 on the Northern Rock bank – said to be the first on a British bank since Overend Gurney in 1866 – reminds us that the failure of a bank may mean that customers' deposits with a bank ultimately realise *less* than their nominal amount.

8. Executive stock options

In many large companies, part of senior managers' pay comprises executive stock options, exercisable only after some time and subject to a number of restrictions. Because they are personal and not directly tradeable, valuing them is not at all easy. IFRS2 says these options represent a cost to the company which should therefore charge them as an expense at the time they are granted. Warren Buffett, who shares this view, asks three pertinent questions: 'If executive stock options are not compensation, what are they? If compensation is not an expense, what is it? If an expense does not belong in the profit and loss account, where does it belong?'

Others say that the effect of charging stock options as an expense will inhibit their use, which might be damaging to small high-tech companies. Many people also argue that measuring their value is extremely difficult as a wide range of subjective estimates is needed to make the valuations. The Black-Scholes formula for valuing options has to be modified to allow for special restrictions; though there might be alternative methods of valuation by independent brokers.

For example, Coca Cola's method of estimating the cost of executive stock options to charge as an expense is an interesting alternative to the Black and Scholes model. The company gets two quotes on the 'put' and 'call' value of the options from two independent financial institutions; and then takes the average as a measure of the market value of the incentives. This is a striking example both of praiseworthy creativity in accounting, and of the potential benefits of 'competition'. (In the 2008 P.D. Leake Lecture, Professor Peter Swann suggested that, from an economic point of view, the optimum number of different sets of accounting standards was probably more than one: in other words, competition was a good idea, 'even' in accounting.) As Hayek said (1978, pp. 179–90), competition is a 'discovery procedure'.

How much difference does it make to reported profits? Goldman Sachs (*Financial Times*, 24 April 2006) calculated that the software sector trades on 23 times 2006 earnings excluding options, but 31 times earnings if they are expensed. That implies that stock options amount to around 25 per cent of before-option profits in that sector. The effect may be smaller in other sectors. As in other cases where the impact of required accounting treatment seems serious, for example as with defined benefit pensions, in the long term companies may change what they actually do. It seems likely that companies may now be more cautious and selective in their use of stock options.

Rewarding managers with stock options or shares by no means aligns their interests with those of shareholders. Most sensible shareholders hold a diversified portfolio – whereas managers have nearly all their eggs in one basket. For this reason one can argue that in theory rational senior managers should *sell short* the shares of the company they work for! (This is somewhat analogous to discouraging employees from investing most of their pension 'pot' in the shares of their own employer.) And stock options are a 'one-way bet' – there is no downside, whereas owners of shares can lose their entire investment. There is also a danger that the 'incentive' of stock options may lead senior managers to pay too much attention to short-term performance and not enough to long-term performance.

9. Provision for pensions

In defined contribution schemes, pensions expense simply consists of the contributions due for a period. But in defined benefit schemes employers have a residual legal liability to pay the defined benefits, if the fund's assets fail to cover them. Actuaries advise companies as to the provisions needed from year to year, based on assumptions about future rates of return, inflation, staff turnover, longevity, and so on. These are all hard to forecast and can lead to large margins of error; though sensitivity analysis can help reveal the differences.

IAS 19 requires companies' balance sheets to include their pension fund's assets and liabilities. They must revalue them every year, and report any (unrealised) difference between one year and the next – either as profit or loss or in changes to equity. Valuations can vary greatly from year to year, and the net difference between the value of fund assets and liabilities can vary far more in proportion. So profit after charging pensions expense may also be extremely volatile and subject to a very high margin of error, though an element of smoothing over time is currently allowed.

Pension fund assets may be difficult to value, *liabilities* still more so. Estimates are needed not only of what discount rate to use but also of the future number of employees, rates of pay, longevity, and so on. 'Pension liabilities can vary by as much as 20 per cent depending on how long companies expect scheme members to live' (*Financial Times*, 27th April 2006). Real differences between various companies' workforces might justify using different longevity tables, but some tables may not have kept pace with improved life expectancy. This could mean understating the pensions liability. Moreover the required

accounting rules may not always coincide with the assumptions of a pension fund's own actuaries.

In June 2008 the long-term redemption yield on UK index-linked government securities was less than 1.0 per cent a year. That very low real long-term interest rate gives liabilities an extremely high present value. Hence company pension fund deficits can increase at the same time as the stock market value of equities is rising. A tiny change in the interest rate can make a very large difference to the 'present value' of estimated future cash flows. Using an annual rate of, say, 2 per cent instead would reduce pension liabilities by hundreds of millions of pounds. Under the 'fair value' system, this could affect the profit and loss account as well as the balance sheet.

10. Discounting long-term liabilities

'Financial' leases transfer to the lessee substantially all of the risks and rewards of ownership of an asset, though not the legal title. Accounts capitalise them as fixed assets and as (discounted) long-term liabilities, thus recognising the transaction's economic substance rather than its legal form. Accounts depreciate the resulting fixed assets and split the regular lease payments between interest expense and principal repayment. On other leases the regular lease payments are simply operating expenses.

The above distinction has worked fairly well for many years, but accounting standard-setters are now thinking of scrapping it. They may in future require companies to capitalise *all* leases, both long term *and* short term. The impact on the balance sheet, for example the debt/equity ratio (which Chapter 7 discusses further), may matter more than the probably small impact on profit.

The balance sheet shows the nominal amount of borrowing, including capitalised leases. Accounts in effect discount future interest payments and repayment of principal at the *historical* interest rate when the money was borrowed. Each year the profit and loss account charges regular interest payments as an expense.

There is an argument for discounting all future payments at a *current* interest rate instead. The result would be to vary the balance sheet amount of the borrowing from year to year: to increase it if interest rates had fallen since the loan was last revalued or to reduce it if interest rates had risen. The change would also appear in the profit and loss account.

The difference would be small for short-term liabilities, more for longer-term ones. For example, a change of 1 per cent [100 basis points]

in a relevant interest rate of 5 per cent a year would change the value of a one-year liability by about 1 per cent, of a five-year liability by about 4 per cent, and of a 15-year liability by about 10 per cent.

That may be all very well if market rates for pure time preference or for the inflation premium have changed; but what if the *risk premium* appropriate for the borrower has changed? It would hardly seem sensible to report a 'profit' because the borrowing company's own riskiness had increased!

11. Derivatives

A derivative is a financial instrument:

- whose value changes in response to the change in a specified interest rate, security price, commodity price, foreign exchange rate, or other variable;
- that requires little or no initial net investment; and
- that is settled at a future date.

IAS 39 provides guidance about how to determine 'fair values':

- The objective is to establish what the transaction price would have been on the measurement date in an arm's length exchange motivated by normal business considerations.
- A valuation technique (a) incorporates all factors that market participants 'would' consider in setting a price and (b) is consistent with accepted economic methodologies for pricing financial instruments.
- In applying valuation techniques, an entity uses estimates and assumptions that are consistent with available information about the estimates and assumptions that market participants would use in setting a price for the financial instrument.
- The best estimate at initial recognition of a financial instrument that is not quoted in an active market is the transaction price unless the fair value of the instrument is evidenced by other observable market transactions or is based on a valuation technique whose variables include only data from observable markets.

The full version of IAS 39 comprises 93 pages of the standard plus 272 pages of basis for Conclusions, Dissenting Opinions, Illustrative Examples and Implementing Guidance. Not surprisingly all that is impossible to summarise in a page or two. Suffice it to say that in valuing

derivatives there is often a very substantial margin of error. While derivatives can be used to hedge risks resulting from operations, they can also amount to out-and-out gambles, which can greatly *increase* the riskiness of a business.

There has recently been concern that in the current state of near inactive markets in some derivatives, 'worst case' scenarios are having to be used for 'mark-to-market' estimates, which in reality may turn out to be over-pessimistic. Some people argue that this phenomenon is itself helping to destroy confidence. It is one thing 'telling it how it is', where there really is a market; but 'telling it how a pessimist thinks it might be' is rather different. All this merely illustrates that in certain conditions mark-to-market estimates can be subject to very large margins of error.

12. Conclusions

Historical cost accounting has long been the basis for stewardship accounting; but standard-setters now seem to regard decision-usefulness as the main purpose of company accounts, which has led to wider use of current values instead.

The basis of measurement chosen can significantly affect accounting numbers. The current value approach in the end may lead to measuring profits by deducting one estimate of the value of shareholders' funds from another; in which case (as Table 3.1 shows) the margin of error in *profit* can be many times that in shareholders' funds.

The treatment of goodwill is also subject to a large margin of error: both when amortising the cost of purchased goodwill and when using the 'impairment' approach to the value of *ongoing* goodwill. Figure 3.3 shows how the new approach in effect capitalises 'internal' goodwill.

As the rate of inflation has fallen, fewer companies revalue tangible fixed assets upwards. Treating executive stock options as expenses is fairly recent. Valuing them is difficult because they tend to be uniquely tailored, hence there is no real 'market' for their precise equivalents.

Measuring the cost of defined benefit pensions is not easy, and varying the assumptions can make a big difference to pension assets and liabilities.

Discounting long-term liabilities at current, instead of at past, interest rates could lead to big differences; though at least the estimates should be transparent.

Derivatives, too, can be hard to value, especially in thin markets, leading again to potentially large margins of error.

4
The Unit of Account

> *[Currency debasement] engages all the hidden forces of economic law on the side of destruction, and does it in a manner which not one man in a million is able to diagnose.*
>
> J.M. Keynes (1919, p. 149)

Accounting has normally used money as the unit of account, and that worked well in Britain until after the Second World War. But in times of inflation, such as we have experienced in the last 60 years, this can lead to significant error. When inflation is high enough, the 'solution' is to use a unit of constant purchasing power instead of money itself as the unit of account.

Someone who gets an annual wage increase of 5 per cent when inflation is 8 per cent a year, will 'really' be worse off; yet if inflation is only 2 per cent a year, the same 5 per cent wage increase means he is better off. In the same way, companies can report money profits in times of inflation when they are 'really' making losses. The resulting margins of error can be surprisingly large.

This chapter starts with some background on money and inflation. It then outlines technical aspects of adjusting accounts to allow for inflation: increasing depreciation of fixed assets; allowing for losses (gains) on net monetary assets (liabilities); and adjusting different years' results to show real trends over periods of several years.

Section 3 summarises a study showing actual large inflation adjustments to the accounts of a medium-sized British company, Lucas Industries plc, over the 25-year period 1969 to 1994. Finally there is a brief discussion of accounting for foreign currencies.

1. Money and inflation

a. Money

Money is normally the unit of accounting measurement. 'Money of account, namely that in which debts and prices and general purchasing power are expressed, is the primary concept of a theory of money.' (Keynes, 1930, p. 3) And Hayek (1976, p. 56) has suggested that, in choosing between different currencies, 'Although at first convenience in daily purchases might be thought decisive in the selection, I believe it would prove that suitability as a unit of account would rule the roost.'

'The pound sterling came into existence in Anglo-Saxon times. There has been no break in the sequence of contracts in which pounds [...] have been the consideration from those times to the present day. Though at one period based upon a silver standard, later upon a gold standard, and in two periods upon no metallic standard at all, the pound has a continuous history; and has never ceased to be accepted at any period in full settlement of debts incurred in the pounds of an earlier period.' (Feaveryear, 1931, p. 2)

The general level of prices on the outbreak of the First World War in 1914 was about the same as it had been in 1660 on the restoration of Charles II. It is true, of course, that measurement over such a long period must be subject to a wide margin of error. For instance, according to Deane and Cole (1967, pp. 17–18), the price indices may have exaggerated the inflation around the Napoleonic Wars. But the inflation between 1790 and 1815 was roughly offset by the deflation between 1820 and 1835.

To us a quarter-millennium of stable money is hard to imagine; yet that was the context of the Industrial Revolution. While British financial institutions, including commercial accounting, were emerging in the late Victorian era, the medium-term value of money was – and was expected to be – stable. Until after the Second World War there was never any question in England of using anything other than money as the basic unit of account.

Prices in general certainly rose from time to time, but during the eighteenth and nineteenth centuries they *fell* too. Instead of an unending *cumulative* rise year after year, as we see nowadays, there was genuine 'fluctuation'. Indeed, from Keynes's birth in 1883 to his *General Theory* in 1936, 'prices in general' *fell* in twice as many peacetime years as they rose. Hayek (1978, pp. 221–2) taught his German students what stable prices meant by producing in a 1963 lecture a British penny

dated 1863 which he had recently received in change on a London bus. It was still in circulation after a hundred years!

There are obvious reasons why money is the best unit of account if its purchasing power is reasonably stable over time. Above all, it is convenient for everyone. Later in this chapter the question will be addressed: how much inflation is needed to render money less than adequate as a unit of account?

b. Modern UK inflation

Since I started my career as an accountant in 1956, the pound has lost nearly 95 per cent of its purchasing power. This represents a rate of sustained currency debasement without precedent in sterling's long history. The term 'currency debasement' is more suitable than 'inflation': it makes it clear that the reason for a widespread increase in money prices is that the general purchasing power ('value') of *money* has fallen. It is not that all goods and services have suddenly become scarcer!

The pound's purchasing power halved between 1945 and 1965; it halved again between 1965 and 1975; and it halved *again* between 1975 and 1980. By 1982 the pound had lost more than 80 per cent of its 1967 purchasing power. This amounted to an average inflation rate of more than 10 per cent a year over that 15-year period – truly a dramatic rate by British peacetime standards over the previous thousand years.

Even so, for a long time most people completely failed to understand the nature of the problem. A striking example was the chairman of the Price Commission (Sir Arthur Cockfield), who stated in September 1973: 'Nobody who reads the newspapers could get the impression that profits as of now are doing particularly badly.' It later transpired that many UK firms were in fact doing extremely badly in 'real' terms, which may partly explain why the *Financial Times* called 1973 'one of the worst years in Stock Exchange memory'.

Nobody in England under the age of 70 has ever known a year in which prices in general fell. In the 60 years since June 1947, when the modern Retail Prices Index (RPI) series started, prices multiplied more than 28-fold: which means an average rate of inflation over the whole period of 5¾ per cent a year. Hence the disappearance of small-value coins, and the substitution of coins for small-value notes. (The £5 note in 2008 has a purchasing power equivalent to about six shillings [30p] in 1958.)

The RPI at January 2008 (based on January 1987 = 100.0) stood at 209.8. Table 4.1 shows the post-war series of Retail Prices Indices, with base dates.

Table 4.1 The Retail Prices Index from June 1947 to January 2008

Base date = 100	Closing date	Closing index	Multiple since June 1947	Period (years)	Average inflation rate	
					for latest period	since June 1947
June 1947	January 1956	153.4	1.53	8.5	5.2%	5.2%
January 1956	January 1962	117.5	1.80	14.5	2.7%	4.1%
January 1962	January 1974	191.8	3.46	26.5	5.6%	4.8%
January 1974	January 1987	395.5	13.67	39.5	11.2%	6.8%
January 1987	January 2008	209.8	28.68	60.5	3.6%	5.7%

c. The unit of account

In the early 1970s, the professional accountancy bodies in the UK proposed using an index of 'general purchasing power' to allow for changes in the purchasing power of money. In effect this amounted to arguing for a so-called Constant Purchasing Power [CPP] unit in place of money as the unit of account (though it was foolishly called 'Current Purchasing Power'). Soon afterwards, with UK inflation running at about 25 per cent a year, the government – which disliked the proposal – set up a committee, under the chairmanship of Francis Sandilands, to make recommendations on 'inflation accounting'.

The government committee's discussion of the usefulness of continuing to employ money as the unit of account, despite the very high level of inflation, was contained in *a single sentence* in its report: 'The pound is equally useful as a unit of measurement to all users of published accounts and to all individuals and entities in the economy.' (Sandilands, 1975, para. 204) This flat assertion was unsupported by any evidence or argument. It amounted to an amazingly feeble defence of a position that had been strongly and continuously criticised during the inflationary post-war years.

Sandilands said (para. 205): 'The pound as a unit of measurement does not change from year to year ... in the sense that it is always the same unit...' It seems there may have been some confusion between the *name* of the unit and its *value* (or meaning). But later the chairman of the government committee said: '...There is no assumption in the Report, or in the minds [sic] of any member of the committee, that the pound, the monetary unit, is the same this year as last year...So [this] is not the assumption underlying the rejection of the [constant]

purchasing power [approach].' (FT/ICAEW Conference, 1975, p. 90) More than 30 years later it still remains something of a mystery how this crucial and misleading assertion could have crept into the report if it was not in the mind of any member of the government committee.

Sandilands was not merely content to recommend continuing to use money as the unit of account in a time of rapid inflation. The government committee went on to argue (para. 414) that even the constant purchasing power unit satisfied the requirement to maintain a constant value through time 'only very imperfectly'. Admittedly it had 'a constant value in terms of the goods and services covered by the Retail Prices Index [RPI]. However it will not have a constant value in terms of the monetary unit, nor in terms of any goods and services not covered by the RPI, nor in terms of any individual item of goods and services.'

Let me pause to repeat the key assertion in that last sentence: *the constant purchasing power unit will not have a constant value in terms of the monetary unit.* The government committee apparently thought it sensible to regard the *monetary unit* as a paragon of constancy in a time of raging inflation, against whose solid unshakeable stability the unreliability of other potential units of account could be evaluated! For further discussion of the government committee's opposition to Constant Purchasing Power [CPP] accounting see my book *On A Cloth Untrue.* (Myddelton, 1984, pp. 43–78)

d. Impact on accounts

Using money as the unit of account implicitly assumes there is no significant inflation, so the effect of a high rate of currency debasement on accounting has been devastating. To avoid confusion it is better to call conventional 'historical cost' [HC] accounting Historical Money Cost [HMC] accounting. Using the acronym HMC warns us to be careful about which *unit of account* we are using – whether (current) 'money' or constant purchasing power units (of a definite date).

In the worst post-war period of UK currency debasement, between 1970 and 1990, prices in general increased seven-fold in 20 years – an average inflation rate of more than 10 per cent a year. In such conditions accounting in terms of money is unsatisfactory and 'inflation accounting' adjustments are required, which can make a very large difference to reported HMC profits or losses. (There can also be serious consequences from taxation of 'overstated' corporate profits.)

The margins of error resulting from the interim-ness of annual accounts, or from historical cost versus current value measurements,

are ultimately merely 'transfers' between accounting periods. In contrast, adjustments for currency debasement make a big difference to the total profits and losses over an entity's whole life.

There are two basic effects of inflation on historical money cost accounts:

- within an accounting period, and
- in comparisons over time.

Within an accounting period, inflation has different effects on money assets (and liabilities) and 'real' assets. The impact on depreciation of fixed assets can be deceptive because it is *cumulative*, often over a long period of years. Hence, as this chapter explains, HMC accounts may continue to need large adjustments long after inflation has fallen (or even *ceased* altogether). In such conditions 'constant purchasing power' [CPP] accounts are more meaningful.

Modern governments insist on a monopoly of issuing money. And those who are responsible for debasing the currency also itch to interfere with whether and how to account for inflation. Orwell's *1984* referred to 'newspeak' as a form of government trickery aiming to prevent the public discussing certain matters for which there were no words. In a similar way modern governments opposed CPP accounting for inflation in both the US (where it is called 'constant dollar' accounting) and the UK. This was like insisting on 'oldcalc', to prevent companies reporting *real* profits (or losses). One reason may be that (as section 3 of this chapter shows) inflation can cause the effective rate of corporation tax on 'real' profits to be much higher than the nominal rate of tax on 'money' profits.

As in other developed countries, the UK rate of inflation has fallen sharply from the very high levels of the 1970s and 1980s. In the 15 years since 1993 inflation averaged just under 3 per cent a year. Even this seemingly 'low' rate of inflation, which has reduced the pound's purchasing power by about one-third in that period, can have a striking impact on accounts using money as the unit of account. The annual rate of inflation averaged over a 15-year period is relevant with respect to depreciation of many fixed assets which are assumed to have a useful life of about that long. In 2007 the UK 15-year average rate of inflation, which had been falling since 1983, started to rise again.

Moreover, in one respect a low cumulative rate of inflation can be even more confusing than a higher rate. At least if inflation is running at 10 per cent a year or higher, there is usually not much doubt

whether one is talking about money (nominal) amounts or inflation-adjusted ('real') amounts. Yet with lower rates of inflation that important distinction can easily be unclear.

e. Which index to use?

Any adjustment to accounts to allow for inflation can itself only be approximate, since there is no perfect index measuring the extent of inflation. Among possible indexes are:

- the gross domestic product [GDP] deflator
- the total final expenditure [TFE] deflator
- the consumers expenditure deflator [CED]
- the retail prices index [RPI].

In the early 1970s, the UK accounting standard SSAP7 (Accounting Standards Steering Committee, 1973) said:

> the choice between these indicators is in principle quite finely balanced. The first reflects changes in total home costs and the second changes in total final output (including investment goods and exports). But changes in the purchasing power of the pound are ... more often conceived in relation to the purchasing power of money spent by individuals on the goods and services purchased for their own personal use and for this reason indicators of the third or fourth type are considered to be more appropriate.

At that time it was thought that the RPI had certain practical advantages. Unlike the CED it was not subject to retrospective revision, and (very important) it was available monthly by the middle of the following month; whereas the CED was an annual index available in March of the following year.

Maurice Moonitz (1973, p. 37), former Director of Research for the American Institute of CPAs [AICPA], said:

> My own preference is for the GNP Implicit Price Deflators, on the grounds that they are more broadly-based... Statisticians, however, seem to prefer the 'cost-of-living' indexes on technical grounds. They find these indexes more carefully constructed and conceptually clearer in nature... The problem of choice is less acute than it might appear. Over ten years ago, at the American Institute of CPAs, we plotted the behaviour of the [US] Consumers Price Index against

> that of the GNP Price deflators. We found virtually no difference... Others have made similar comparisons more recently, and find the same result.

In 2003, under pressure from the European Union, seeking comparability between EU member-states, another index was introduced: the [UK] Consumer Prices Index [CPI], which the government uses to assess its inflation target. (This was formerly known as the Harmonised Index of Consumer Prices [HICP].) The CPI excludes the prices of volatile items such as seasonal food and certain housing-related costs, including Council Tax and mortgage interest, which makes it rather unrealistic. But the population covered by the RPI is more limited, excluding higher-income households whose spending is atypical and pensioner households more than 75 per cent of whose income comes from the state. These exclusions aim to result in a more 'typical' inflation figure for most people. The RPI's formula uses an arithmetic mean whereas the CPI's formula (in the UK) uses a geometric mean, which probably reduces the apparent inflation rate by about ½ per cent a year. As I write, the CPI has risen by about 4¾ per cent in the last 12 months, compared with about 5¼ per cent for the RPI.

The RPI is widely used for inflation adjustments, for example to tax thresholds, pensions and state benefits, and index-linked gilts. Clearly there is room for argument about the best practical index to use for the purposes of CPP accounting. But there is no need to get too excited. If a better index than the RPI can be developed, there is no reason in principle why CPP accounting should not adopt it. Nobody would pretend that the RPI is an absolutely accurate inverse index of the changing general purchasing power of money. The Sandilands Report itself (para. 237) very sensibly pointed out: 'The idea that accounts can show a true and fair view of a company's position accurate to the nearest pound needs to be abandoned. Such precision is unrealistic.'

The relevant question is whether the RPI is sufficiently close to reality to be a useful practical tool. (That is why monthly publication is so important.) We need to distinguish between the concept of a stable (constant) measuring unit in accounts and the practical problems of measurement which have to be coped with. While the RPI is certainly not perfect, it is a great deal less inaccurate than the implicit index used in ordinary money accounts. That index (which always stands at 100.0 year after year!) suggests that 'a pound is a pound is a pound', which – in terms of purchasing power – is clearly not the case.

2. Constant Purchasing Power accounting

Section 2 deals with details of why and how to make adjustments to conventional money accounts to allow for inflation. But some readers may prefer to turn at once to section 3, for a real-life example of how large a difference inflation adjustments made to Lucas Industries plc accounts over the 25-year period between 1969 and 1994.

a. Overview

'The past is a foreign country: they do things differently there.' (Hartley, 1953, p. 1) The logic of constant purchasing power accounting draws on the same idea. When the purchasing power of money is changing, CPP accounting treats money amounts of different times as if they were 'foreign' currencies.

In mid-2008 £1 = about $2.00: one pound equals about two dollars. Similarly one can say that £1 in 1988 was roughly equivalent *in purchasing power* to about £2.00 in 2008. The Retail Prices Index (base date January 1987 = 100) averaged 107 in 1988 and stood at 214 in April 2008. The best way to express this in writing is to use a subscript before the currency symbol: $_{88}$£1 = $_{08}$£2.0. In speech: 'One 1988 pound equals two 2008 pounds.'

As long as a set of accounts always uses the *same* unit of account throughout (money of the *same* date) in principle preparers of accounts may use any unit of measurement they choose. Hence Rio Tinto plc, an Anglo-Australian group, uses US dollars. The same principle applies to CPP accounts.

For instance, in drawing up CPP accounts, I myself always use the most recent base date of the RPI: first this was January 1962 pounds, then January 1974 pounds, and now January 1987 pounds. This is for ease of preparation. For *readers*, though, it makes sense as a rule to express accounts in more up-to-date terms – in terms of constant pounds as at the date of the most recent balance sheet. That requires restating the numbers every year (multiplying them all by the same factor) to update the previous year's accounts.

In effect CPP accounting uses the RPI as an 'exchange rate' between money amounts of different dates. Most of us try to make allowance for inflation, if at all, in our heads, which (for most of us) is somewhat unreliable; but CPP accounting makes such adjustments both explicit and comprehensive. It must be obvious, however, that such CPP adjustments can at best be only very approximate. The RPI is by no means a perfect (reciprocal) measurement of the 'general purchasing

power' of money. There is no such thing. But it can still serve as a useful practical basis for necessary adjustments to HMC accounts.

There are three basic CPP rules:

- Always *date* money amounts.
- Use a general index of purchasing power over time, in order to translate money amounts of different dates into units of account of the *same* purchasing power.
- Add, subtract and compare only units of account of the *same* purchasing power.

In times of inflation, accounting in terms of 'constant' pounds of a definite date, rather than in terms simply of 'money', makes a difference in three respects. The next three sub-sections look in turn at these three main kinds of CPP adjustments:

- Losses (gains) of purchasing power in respect of *monetary* assets (liabilities);
- Increases in both the 'cost' and depreciation of tangible fixed assets;
- Adjustments needed to make valid comparisons between different years.

b. Losses (and gains) in respect of monetary assets (and liabilities)

This item is unfamiliar, of course, because we are used to accounting in terms of money. Clearly monetary assets or liabilities cannot give rise to losses or gains *in terms of the monetary unit.* But CPP accounts use units of constant purchasing power. So in times of inflation (when the purchasing power of money is falling), a company which holds money (or monetary assets such as trade debtors) will lose *purchasing power* over time as a result. CPP accounts record this loss in the profit and loss account, but there is no corresponding item in 'money' accounts. The description 'monetary gains and losses', which nearly everyone uses, is not quite accurate. Strictly the correct description is 'purchasing power losses and gains in respect of monetary assets and liabilities'.

If in times of inflation a company holds the same amount of money throughout a period, it loses purchasing power during the period. If Rip Van Winkle put £1,000 in £5 notes in a sock under his bed in 1948, when he woke up in 2008 his money would still be there. But the RPI would be 28 times higher, representing an average rate of inflation of 5¾ per cent a year over the 60-year period. So his money would have lost 96½ per cent of the purchasing power it started with. CPP accounts would record this significant 'real' loss, but *money accounts would not.*

The rate of 'currency debasement' must always be less than the rate of 'inflation'. For example, a 50 per cent rate of inflation means that an index of the general price level rises from 100 to 150. The corresponding index of the purchasing power of money falls from 100 to 67 [i.e. 100/150], so the rate of currency debasement is 33 per cent. Money cannot lose more than 100 per cent of its purchasing power, but the general level of prices can rise by much more than 100 per cent. Any UK residents over 20 years old have already experienced this in their own lifetime.

Between the start of the first Channel Tunnel project in 1964 and the opening of the (second) Channel Tunnel in 1994, UK prices in general multiplied *ten times*! So over that 30-year period, the purchasing power of the pound fell by about 90 per cent. If physical measures over the same period had changed at the same rate, by 1994 the Tunnel itself would have been only about three miles long! (By the time the Channel Tunnel high-speed Rail Link to London opened in late 2007, the length of the Tunnel would have shrunk even further, to about two miles.)

Suppose a company held £20 million in cash at the end of 2006, and continued to hold the same amount of money all through 2007. During the year the RPI rose from 202.7 in December 2006 to 210.9 in December 2007, an increase of 4.05 per cent. (This means the purchasing power of the pound *fell* by 3.89 per cent.)

Let us suppose that we are going to do our CPP accounting in terms of 'end-of-2007' pounds. (To keep it simple, I shall talk about 'B' pounds and 'E' pounds, standing for 'Beginning-of-year' pounds and 'End-of-year' pounds; and I shall also call the £20 million '£20,000k'.) The opening balance of ${}_{B}$£20,000k is equivalent to ${}_{E}$£20,810k. The closing balance of £20,000k, of course, is ${}_{E}$£20,000k. So during the year there has been a loss of purchasing power of ${}_{E}$£810k, which is *not shown at all* in conventional HMC accounts.

We could, if we wanted, express the closing balance of £20,000k in terms of ${}_{B}$£s, by dividing by 1.0405 – to give ${}_{B}$£19,222k. Then the loss of purchasing power (compared with the opening balance of ${}_{B}$£20,000k) would be ${}_{B}$£778k; and multiplying by the 'exchange rate' between ${}_{B}$£s and ${}_{E}$£s [1.0405] gives ${}_{E}$£810k. Or we could use January 1987 pounds: opening balance £20,000k/202.7 = ${}_{87}$£9,867k; closing balance £20,000k/210.9 = ${}_{87}$£9,483k. Loss of purchasing power during the year: ${}_{87}$£384k, which, when multiplied by 2.109, is ${}_{E}$£810k. So these three different figures – ${}_{B}$£778k, ${}_{87}$£384k and ${}_{E}$£810k – all represent the *same* 'real' amount, but expressed in terms of different units of account ('currencies'). It is obviously critical to note *which* 'currency' is being used.

Few companies would hold £20 million throughout a whole year without earning some interest on it. If the rate of interest was 6.0 per cent a year, then interest received (say at the end of the year) would amount to $_{E}$£1,200k. The 'money' profit and loss account would show this £1,200k as income received. But the CPP profit and loss account would in effect reduce this amount by *more than two-thirds,* by the $_{E}$£810k loss of purchasing power on monetary assets.

The after-tax position is even worse, since the loss of purchasing power is not deductible for tax purposes. With a 28 per cent rate of corporation tax, the *after-tax* interest received on the £20 million would be $_{E}$£864k. After deducting the $_{E}$£810k loss of purchasing power, the 'real' after-tax interest is only $_{E}$£54k – a real net yield of 0.26 per cent.

The principle is exactly the same with monetary *liabilities*. Interest payable, charged in full as an expense in the 'money' profit and loss account, is reduced in CPP accounts by offsetting a (non-taxable) purchasing power *gain*. Hence it is possible for CPP adjustments to result in *increasing* reported conventional accounting profits.

For example, in the German hyper-inflation of 1923: 'The great industrialists and speculators ... soon realized how profitable it would be at a time of continuous monetary depreciation to borrow other people's money. It became one of the rules of good management to contract as many debts as possible: debts which were repaid later with depreciated currency. Great profits were made from the inflation by knowing how to exploit bank credits wisely.' (Bresciani-Turroni, 1931, p. 294.)

So far we have been looking at money held; but in fact we need to add all other 'monetary assets' (such as debtors); and we must also take off all 'monetary liabilities' (such as creditors). We can then calculate the purchasing power loss or gain by referring to total *net* monetary assets [NMA] or liabilities.

In most industries I suggest we can also treat stocks *as if* they were monetary assets, since the holding period is usually only a few months. This greatly simplifies the process of making currency debasement adjustments without much affecting the extent of the adjustment. For example, if the average period of holding stock were three months and if the rate of inflation were 4 per cent a year, the difference with respect to stock would be only 1.0 per cent. Given all the other uncertainties and approximations in accounts, this does not seem very significant. (Admittedly it might not be sufficiently accurate if the holding period were long – e.g. for long-term contracts – or if the rate of inflation were high enough.) Of course this assumption is not strictly 'correct': the relevant question, however, is whether, as a rule, it gives results that are

'near enough' (see Chapter 8). Friedman discussed aspects of this question at length in 'The Methodology of Positive Economics' (1953).

What if the amount of net monetary assets or liabilities fluctuates during the year? In fact 'net working capital' may often *not* vary much during a year, since seasonal variations in working capital items such as debtors or stocks will often be offset by an opposite change in net liquid resources. But if NMA does fluctuate, we may then need to average *monthly* amounts which do, however, need to be expressed in the *same* unit of account.

Suppose net monetary assets were £380k at the beginning of the year, and £441k at the end, and the annual rate of inflation was 5.0 per cent. Then the loss of purchasing power in respect of net monetary assets would amount to $_{E}$£19,992, as shown in Table 4.2.

$_{E}$£19,992 is by no means the precisely 'correct' amount of the CPP loss on net monetary assets during the year. It is merely the result of the specific assumptions made (such as averaging the opening and closing balances, after expressing both in terms of the same CPP unit). So at best inflation-adjusted accounts will only be approximate. But it would be *theoretically* incorrect to average the opening and closing balances of net monetary assets (namely, £380k and £441k) to get £410.5k and thus get a loss of £19,540, even though if the rate of inflation is not too high, it may not be far out. (Here the difference is only 2¼ per cent.)

If we do treat stocks, as a rule, as if they were monetary assets, this means that we can normally regard *all* current assets and current liabilities as monetary items. In practice that is a helpful simplification. To determine net monetary assets, therefore, one simply starts with net working capital (current assets minus current liabilities), deducts any long-term monetary liabilities and adds any long-term monetary assets.

Table 4.2 Example of loss on net monetary assets

Thousands of pounds	**Money £k**		**CPP end-of-year £k**
Opening net monetary assets	380	× 1.05	$_{E}$£399
Closing net monetary assets	441	[× 1.00]	$_{E}$£441
Average net monetary assets			**$_{E}$£420**
Rate of currency debasement	5/105 = 4.76%		
Loss on net monetary assets	$_{E}$£420,000 × 4.76% = $_{E}$£19,992		

c. Fixed assets and depreciation

Before discussing depreciation and tangible fixed assets, it is worth noting that Constant Purchasing Power [CPP] accounting, a method of allowing for inflation, is itself a form of 'historical cost' [HC] accounting. CPP's *unit of account* is a 'constant purchasing power unit' not money. But the essential *basis of measurement* is still cost.

It is, however, also possible to apply the CPP approach to current value accounts (see Chapter 3), as in the bottom right-hand quadrant of Figure 4.1.

CPP accounts calculate depreciation of fixed assets on the same basis as HMC accounts (namely, 'cost'), but express both the fixed asset's cost and the resulting depreciation expense, not in money, but in units of *constant* purchasing power. CPP accounts translate the historical money cost of a fixed asset acquired some years ago into constant purchasing power units. The same rate of depreciation then applies to that amount (the asset's expected *life* stays the same). The upward 'restatement' (it is better not to call it a 'revaluation') of the fixed asset's HMC net book value [NBV] into CPP terms is exactly balanced by a similar upwards restatement to shareholders' funds (equity).

The two main kinds of tangible fixed assets are land and buildings, usually with a long life, and plant and equipment, where lives often

		Basis of measuring assets and expenses	
		Historical cost	Current Value
	Money	Historical Money Cost [HMC] accounting	Current Value [CV] accounting
Unit of account	Unit of constant purchasing power	Constant Purchasing Power [CPP] accounting	CV/CPP combination

Figure 4.1 Combining different units of account and bases of measurement

average about 15 years. For this reason I keep a note of the cumulative average annual rate of inflation over 15-year periods. In 2007 the 15-year average annual rate of UK inflation, after falling for many years to a low point of 2.8 per cent a year, started to increase again.

Suppose a company writes off all equipment over 15 years, using straight-line depreciation and assuming no residual value. The company buys a machine in 1996 for £90,000, on which it charges HMC depreciation of £6,000 a year. By 2007, the Retail Prices Index has risen by one-third. 2007's CPP accounts will show the asset at cost $_{07}$£120,000; and depreciation expense for the year will be one-fifteenth of that cost, namely $_{07}$£8,000. In effect, a charge of only £6,000 in 2007's HMC accounts [which is really $_{96}$£6,000] is 'undercharging' depreciation expense by *one-third* of the HMC amount charged.

After 12 years of the machine's use, the 2007 CPP accounts will show total depreciation as $_{07}$£96,000, and the asset's NBV as $_{07}$£24,000, compared with HMC amounts of £72,000 and £18,000. Thus the HMC NBV of £18,000 at the end of 2007 also understates the CPP amount by *one-third*. (We assume readers of the 2007 HMC accounts are reading the money accounts as being in 2007 pounds.) Thus the CPP Return on Assets ratio is reduced in *two* respects compared with the HMC ratio: both by reducing the Return and by increasing the Assets.

Suppose that in the next year 2008 there were *no inflation at all*. The HMC accounts would still be charging £6,000 depreciation expense in that year; and the correct CPP charge would again be $_{07}$£8,000 [= $_{08}$£8,000]. So there would *again* be a one-third understatement of depreciation expense in 'unadjusted' HMC accounts in 2008, *even though there was no inflation in 2008*. The reason is the *cumulative* inflation since the 1996 date of purchase. Thus CPP adjustments can sometimes be counter-intuitive.

What is the order of magnitude of the understatement of depreciation expense in HMC accounts, as compared with CPP accounts? The key variables are the asset life and the rate of inflation. In Table 4.3 I calculate the understatement over a fixed asset's *entire life*. For simplicity, I assume the asset cost £1,000 at the beginning of year 1 [= end of Year 0], to which straight-line depreciation applies over the ten-year life (no residual value), with inflation of 10 per cent each year. (This is a high rate of inflation, but it makes it easier to follow the calculations. Lower rates of inflation are considered later.)

Column 2 shows the HMC depreciation expense year by year, in money terms: simply £100 each year. Column 3 shows the RPI year by year (based on End of Year 0 = 100). Column 4 shows the same HMC

Table 4.3 Understatement of HMC depreciation compared with CPP depreciation

Year	**HMC depreciation** In money terms *Current £s*	**Retail Prices Index** end-of-year levels *End of Year 0 = 100*	**HMC depreciation** In CPP terms *Constant Year 0 £s*
1	100	110.0	90.9
2	100	121.0	82.6
3	100	133.1	75.1
4	100	146.4	68.3
5	100	161.1	62.1
6	100	177.2	56.5
7	100	194.9	51.3
8	100	214.4	46.7
9	100	235.8	42.4
10	100	259.4	38.6
Total	1000		614.5

depreciation expense year by year, but expressed *in CPP terms*. The table shows CPP amounts in constant End of Year 0 £s. (In practice, for the convenience of readers, CPP accounts would normally show the figures in terms of End of Year 10 £s, but in this example that would merely complicate the presentation.)

In CPP accounts, the total depreciation expense charged over the asset's life would (of course) be the same as its cost, namely 1,000 constant End of Year 0 £s. This would be the result of simply charging $_0$£100 for each of the ten years. But under HMC accounting the *actual* amount charged (expressed in terms of constant Year 0 pounds) totals only $_0$£614.5. This represents an 'under-statement' of $_0$£385.5 over the ten-year life.

It is probably most helpful to express the 'margin of error' as a proportion of the amount actually charged in HMC accounts. (I assume that, in times of inflation, CPP accounting is 'correct' and HMC accounting is 'wrong': see my book 'On A Cloth Untrue'.) HMC accounting *understates* depreciation, over the asset's whole life, by $_0$£385.5. As a proportion of the amount actually charged, this is 62.7 per cent [= 385.5/614.5].

Such an error may seem very large, but we have been assuming average inflation of 10 per cent a year over the asset's ten-year life. That is not absurd: the actual average ten-year rate of UK inflation was *higher* than that between 1966/76 and 1975/85. But in 2008 we are also interested in the margin of error for lower rates of inflation.

Table 4.4 Understatement of HMC depreciation compared with CPP depreciation as a percentage of HMC depreciation charged

Life (years)	*Average inflation rate per year*					
	2%	5%	8%	10%	12%	15%
5	6.1	15.5	25.2	31.9	38.7	49.2
10	11.3	29.5	49.0	**62.7**	77.0	99.3
15	16.7	**44.5**	75.2	97.2	120.2	156.5
20	22.3	60.5	103.7	134.9	167.8	219.5
25	28.1	77.4	134.2	175.4	218.8	286.8
30	34.0	95.2	166.5	218.2	272.4	356.9
40	46.2	133.1	235.4	309.0	385.2	502.2
50	59.1	173.9	308.7	404.3	502.1	651.4

Table 4.4 shows equivalent understatements of HMC depreciation expense for various combinations of asset lives and average inflation rates. Thus with 5 per cent a year inflation over an asset's 15-year life, the understatement would be 44.5 per cent.

Table 4.5 shows the actual UK rate of inflation over past years looking back from 2008. It shows approximate understatements of straight-line

Table 4.5 Understatement of HMC depreciation for UK fixed assets over past 50 years

Number of years back from 2008	**Average annual rate of inflation** %	**Approximate understatement of HMC depreciation** %
5	3.5	10
10	2.8	15
15	2.9	25
20	3.6	40
25	3.8	55
30	5.0	95
40	6.6	190
50	5.9	215

HMC depreciation for assets with lives as set out in Column 1 (assuming no residual value). The average understatement of depreciation over 15 years (a typical life for many items of plant and equipment) would be 25 per cent.

Even a 15 per cent understatement for an asset with a ten-year life seems worth knowing about. This adjustment is to *after*-tax profits, since book depreciation is not tax-deductible in the UK. For assets with longer lives, the lifetime understatement of HMC depreciation expense seems clearly significant. As noted earlier, the impact on *profits* depends on how large depreciation is relative to profits.

Overall I reckon that inflation adjustments to HMC accounts are likely to be significant if prices in general *double over a 15-year period*, as measured by the Retail Prices Index. That implies the value of money *halving* in 15 years, at an average rate of inflation of 4¾ per cent a year (an average rate of currency debasement of 4½ per cent a year). That was so in the UK for the 23 fifteen-year periods *ending* between 1974 and 1996 – more than half my own career as a teacher of accounting. Between 1992 and 2007 inflation averaged 2.8 per cent a year: it is now rising again.

d. Comparisons over time

So far we have been looking at two 'inflation accounting' [CPP] adjustments to a period's HMC balance sheet and profit and loss account, in respect of losses and gains of purchasing power on monetary assets and liabilities, and depreciation of fixed assets. But we need one further CPP adjustment to accounts expressed in terms of money in order to compare an entity's accounts *over time*. This is so whether those money accounts are in historical cost terms or current value terms.

January 1987 is the base date of the most recent UK RPI series. If one were to use such a base date for preparing *and presenting* CPP accounts, then no further adjustments would be needed, since all CPP accounts for different years would be expressed in terms of the *same* constant (January 1987) purchasing power. The trouble is that readers today would probably find it hard to understand the meaning of 'out-of-date' CPP amounts. (It is for this reason that the base date of national income statistics is updated every five years.)

Almost certainly the most useful practice is to re-state CPP accounts *each year* in terms of constant purchasing power as at the date of the *most recent* balance sheet. (One simply multiplies all CPP amounts from an earlier balance sheet date by the increase in the RPI since then.) For example, an asset reported in CPP accounts at the end of 2006 [RPI:

202.7] at $_{06}$£100,000, would be *re-stated* at the end of 2007 [RPI: 210.9] at $_{07}$£104,050 – the RPI having increased by 4.05 per cent between the end of 2006 and the end of 2007. The amount is the *same* in 'real' terms, but it is being expressed in terms of different CPP 'currencies'.

The same principle would apply for ten-year statistics. So 1998 CPP accounts, first expressed in terms of 1998 pounds, would be re-stated for purposes of the 2007 ten-year statistics into terms of 2007 pounds (as would the CPP figures for 1999, 2000 etc.) To achieve this, the 1998 CPP figures would have to be multiplied by 128.28 per cent, the total RPI increase between the end of 1998 [RPI: 164.4] and the end of 2007 [RPI: 210.9] being 28.28 per cent; and similarly for later years at ever decreasing percentage uplifts.

Failure to make this second set of adjustments would mean making false comparisons over time. Over short periods, if inflation rates are low, this may not be too serious; but over longer periods, or if inflation is fairly high, the comparisons can be quite misleading. This matters, as one of the main practical purposes of accounts is to detect trends over periods of more than two years. For example, as discussed in detail in the next section, Lucas Industries reported its annual sales revenue as increasing between 1969 and 1994 by 775 per cent, but in CPP terms the 'real' increase was only 11 per cent. That was over a 25 year period, but it is a very large difference.

The 1975 Sandilands Report (of a government committee which did *not* support CPP) said (para. 156): 'The essence of judging performance and efficiency is the ability to compare the results of one period with another...' Yet the same report wrongly claimed (para. 13), in **bold type**, that, so far as the profit and loss account is concerned, its proposed two adjustments (in respect of depreciation and cost of sales) '... and these two alone, constitute a comprehensive system of accounting for inflation'. That was a serious mistake. (The Sandilands report (para. 627) did concede that it probably *would* be useful for dividend figures in five- or ten-year tables to be adjusted by the Retail Prices Index.)

3. Lucas Industries plc, CPP accounts 1969–94

Section 2 explained the mechanics of Constant Purchasing Power [CPP] accounting; but in a book on margins of error it may be helpful to give a specific example of the huge effect that comprehensive CPP adjustments for inflation can have on Historical Money Cost [HMC] accounts. The following details come from my study of Lucas Industries plc 1969–1994 (Myddelton, 1996, pp. 271–88).

To facilitate an overview, the 25 years (ending July) from 1969 to 1994 were split into five separate periods of five years each, labelled A to E. Thus 1969–74 was Period A, 1974–9 Period B, and so on. The Retail Prices Index [January 1987 = 100] rose from 17.4 in August 1969 to 144.0 in July 1994. Over the 25 years 1969 to 1994, the pound lost about 88 per cent of its general purchasing power, giving an average rate of 'inflation' (rising prices) of 8.8 per cent a year and an average rate of 'currency debasement' (falling purchasing power of money) of 8.1 per cent a year.

Lucas Industries was a well-established company with few large acquisitions or divestments during the period and with little real growth. Annual sales averaged about $_{94}$£2,500 million throughout the period. Thus the company was more recognisably the same over the whole period than most other UK groups of its size. Annual HMC sales revenue increased in all but three of the 25 years, in total by 775 per cent. CPP ('real') sales revenue fell in 11 years and in total increased by only 11 per cent. Thus nearly all the reported increases in HMC sales revenue merely reflected inflation, they did not represent 'real' increases.

Table 4.6 shows annual rates of Return on Net Assets (Operating Profit Before Interest and Tax/Net Assets) and Return on Equity (Profit After Tax/Shareholders' Funds) on both an HMC and a CPP basis for each of the five five-year periods.

Period A (1969–74) showed a fairly small difference between HMC [11.7 per cent] and CPP [8.5 per cent] rates of return on net assets, despite a high [9.7 per cent] average rate of inflation; whereas period D (1984–9) showed large differences [HMC 13.9 per cent v. CPP 4.8 per cent], despite a lower [5.3 per cent] average rate of inflation. This reflects the importance of *cumulative* CPP adjustments for depreciation. For example, even if there had been *no inflation at all* in a later Period F (1994–9), CPP profits would still have been less than HMC profits.

Table 4.6 Lucas Industries plc 1969–94: HMC versus CPP profitability

Periods ending 31 July	Average annual inflation	Return on Net Assets			Return on Equity		
		HMC	CPP	Gap	HMC	CPP	Gap
	%	%	%	%	%	%	%
A. 1969–74	9.7	11.7	8.5	3.2	7.8	3.5	4.3
B. 1974–79	15.9	16.8	7.8	9.0	15.2	4.5	10.7
C. 1979–84	8.9	6.1	(1.3)	7.4	0.2	(6.9)	7.1
D. 1984–89	5.3	13.9	4.8	9.1	10.8	(0.4)	11.2
E. 1989–94	4.5	7.1	2.2	4.9	0.4	(5.5)	5.9
25 years	**8.8**	**10.1**	**4.3**	**5.8**	**5.5**	**(1.0)**	**6.5**

One can get wet from walking under trees even after a rainstorm has ended.

In total over the whole 25 years HMC profits totalled £628 million, while CPP *losses* amounted to **£306 million**. (Money amounts in **bold** are in terms of July 1994 purchasing power). HMC accounts showed profits in all five periods (very small ones in periods C and E), but CPP accounts showed losses in periods C, D and E [1980–1994]. In respect of that 15-year period 1980–94, in six years there were already HMC losses, and in six years the inflation adjustments translated HMC profits into CPP losses. In only three of the 15 years did Lucas make a CPP profit after tax. *This is the crucial result: CPP adjustments transforming reported HMC profits into actual CPP losses.*

In total over the 25 years, HMC profits covered dividends 1.3 times, while CPP dividends were 2½ times as large as CPP *losses*. HMC retained profits totalled £153m, while CPP 'retained losses' amounted to no less than **£1,093m**! CPP profits covered dividends paid in only two of the 16 years since 1978. During the 25 years there were four separate rights issue, raising a total of **£726m**. Thus Lucas shareholders themselves financed nearly all the purchasing power from which their dividends of **£787m** were paid!

It is worth noting that CPP adjustments affects the two main gearing (leverage) measures in *opposite* directions. They 'improve' (reduce) debt ratios (by increasing equity, due to the increase in the net book value of fixed assets); but they 'worsen' (reduce) interest cover (by reducing profit).

In the 15-year period comprising periods B, C and D (from 1974–89), when inflation averaged 10 per cent a year, annual HMC rates of return exceeded CPP rates of return by very large margins (unweighted averages): over 8 per cent a year for Return on Net Assets [HMC 12.3 per cent v. CPP 3.8 per cent] and nearly 10 per cent a year for Return on Equity [HMC 8.7 per cent v. CPP (0.9) per cent].

Over the whole 25-year period, HMC depreciation totalled 2.8 per cent of sales revenue, while the CPP charge was 4.9 per cent of sales. In periods C and D, the CPP depreciation charge was more than twice as much as HMC. (The CPP charge for this purpose was expressed in 'average 1979–84 pounds' and 'average 1984–9 pounds' respectively.) In other words, the HMC depreciation charge understated the 'true' expense by *more than 100 per cent.* And over that 10-year period 1979–89, HMC depreciation exceeded HMC profit after tax. Hence in those years the CPP depreciation adjustment alone was enough to translate HMC profits into CPP losses. In period E, when inflation averaged 'only' 4.5 per cent a year, CPP depreciation was still more than 75 per cent higher than HMC.

HMC accounts, of course, being expressed in money terms, report neither loss nor profit in respect of Net Monetary Assets [NMA] or Liabilities. But CPP accounts show that over the 25 years Lucas Industries lost over **£500m** of purchasing power in respect of Net Monetary Assets. That is a huge amount for HMC accounts to leave out (nearly 1 per cent of sales). In times of currency debasement, 'cash mountains' are very expensive in 'real' terms, but you would never think so from HMC accounts. Lucas lost **£400m** (about 2 per cent of sales) in the nine years from 1973 to 1981. During that period NMA averaged **£350m** and the average rate of currency debasement was 12½ per cent a year. (Over the remaining 16 years, NMA averaged **£100m**, the average rate of currency debasement was 5 per cent a year and losses totalled nearly **£100m**.)

Whether Lucas made a real profit or a real loss, the tax authorities still claimed their take of around **£180m** in each five-year period. Total HMC profits before tax amounted to £1,085m, and total HMC corporation tax to £457m, an average rate of 42 per cent. But the CPP results were very different. In period D the tax bill exceeded real profit before tax; and in periods C and E, when Lucas made real *losses* before tax, the tax charge on 'profits' still continued remorselessly. Since the British government was responsible both for debasing the currency and for the tax rules, this represents a staggering example of moral hazard. Over the 25 years, CPP profits before tax totalled **£608m**, but taxes totalled **£914m**. *Thus the average rate of corporation tax on real profits worked out at 150 per cent!*

Many readers may be surprised by the size of these 'errors'. (See Keynes's comment at the start of this chapter.)

4. Foreign currencies

Multinational companies operate in many countries, and maintain the accounts of some subsidiaries in foreign currencies. In order to prepare group accounts they need to add together (consolidate) the accounts of all their subsidiaries with the accounts of the holding company. It is clearly essential to translate all accounts into terms of the *same* currency before doing so (which need not be the 'domestic' currency).

Multinational companies may have 'monetary' assets and liabilities in many different currencies. If there were very different rates of inflation in various currencies, this could complicate the estimates of CPP gains and losses. As long as inflation rates are similar, however, it is probably acceptable simply to use the reporting currency.

This process raises some difficult problems, both in practice and theory, but nobody disagrees with the principle. The fact that foreign currency translations cannot be precisely accurate has not yet led

anyone seriously to suggest that they should not be made at all. (Though, in the context of inflation accounting, I once sarcastically suggested just that in commenting on the Accounting Standards Board's Exposure Draft 27 on Accounting for Foreign Currency Translations.)

In translating foreign currencies in group profit and loss accounts, companies once used *either* 'end-of-period' exchange rates *or* 'average-for-the-year' rates. The difference between the two methods could be large, depending on what proportion of its profits a company earned outside its home country, and how much foreign exchange rates varied during a period.

Nowadays accounting standards require the use of 'average-for-the-year' exchange rates in the profit and loss account. But there is still some leeway in precisely how to calculate the numbers. Ernst & Young [EY] (2004, pp. 553–4) suggest six possible methods (for annual accounts):

a. mid-year rate
b. average of opening and closing rates
c. average of month-end/quarter-end rates
d. average of monthly average rates
e. monthly/quarterly results at month-end/quarter-end rates
f. monthly/quarterly results at monthly/quarterly averages.

It is unlikely in times of volatile exchange rates that methods (a) and (b) will give proper weighting to exchange rates throughout the period. They are only likely to give an acceptable answer if the exchange rate has been steadily increasing or decreasing throughout the period. The same applies to method (c) using quarter-end rates. Methods (e) and (f) are much more complex than the others. EY prefer method (d) – an average of monthly average rates – to method (c) using an average of month-end rates; it will normally give fair results unless there are seasonal variations, in which case one should use either method (e) or method (f).

In the example EY uses, there *are* significant seasonal variations: nearly two-thirds of the profits arising in the last three months of the year. According to Ernst & Young, the three relevant methods produce the following annual profit for the foreign subsidiary of a Spanish company:

(d) 18,818 euros; (e) 19,086 euros; (f) 18,891 euros.

Method (e) produces a result 1.42 per cent higher than method (d) and 1.03 per cent higher than method (f); while method (f) produces a

result 0.39 per cent higher than method (d). Between EY's preferred methods ((d) and (c) monthly), there is a difference of over 1 per cent.

Actually the difference between method (d) and the others is somewhat higher: Ernst & Young round off the average of monthly average rates at 1.65, when it should strictly be 1.6533. Thus the profits, which method (d) reports as 18,818, should be only 18,781 (0.2 per cent less).

In the example foreign exchange rates start the year at 1.67, fall to 1.63, rise to 1.70, and fall to 1.60, before ending the year at 1.61. In practice, foreign exchange rates might easily vary a good deal more than that. In 2008 the pound fell from over $2.00 to about $1.50.

5. Conclusions

Clearly there can be very large errors in historical money cost [HMC] accounting, compared with inflation-adjusted 'real terms' Constant Purchasing Power [CPP] accounting.

Conventional money accounting completely ignores losses of purchasing power in respect of Net Monetary Assets. Yet even in times of moderate inflation they can be large, especially for conservative companies which choose to avoid major borrowing. That may be a 'low-risk' policy, but in times of inflation, it is likely, in CPP terms, to be 'low-return' too. A well-known example was GEC, where Arnold Weinstock and his finance directors liked to build up 'cash mountains'.

The understatement of HMC versus CPP depreciation of fixed assets can be surprisingly large. This is partly because its *cumulative* nature can be deceptive. Over the past 15 years UK inflation has been fairly 'low', on average just under 3 per cent a year. Yet over that period a typical adjustment in respect for equipment with a 15-year life would be 25 per cent (see Table 4.5). During the ten years between 1979 and 1989 inflation averaged 7 per cent a year: for Lucas Industries plc HMC depreciation understated the 'real' CPP expense by more than 100 per cent.

When, as with Lucas Industries, corporation tax exceeds real [CPP] profits before tax, then part of the tax bill is being paid out of capital. In the long run that is a recipe for financial disaster.

Comparing real trends over time also requires CPP adjustments, especially over long periods or when inflation rates are high.

5
Accounting Profit Versus Economic Income

It's hard to forecast, especially the future.
Yogi Berra

Nearly half a century ago Boulding (1962) wrote: 'Economics and accountancy ['the uncongenial twins'] are two disciplines which draw their raw material from much the same mines. From these raw materials, however, they seem to fashion remarkably different products. ... In spite of an apparently common subject-matter, they often seem to inhabit totally different worlds, between which there is remarkably little communication.'

This chapter compares the way that accountants and economists try to measure income (or 'profit') for a period. Table 5.1 broadly summarises a number of differences.

In practice the accountants' approach is rather more complex than Table 5.1 shows. For example, not everyone would accept that purchased

Table 5.1 Differences between accountants' and economists' view of income

	Accountants	Economists
Focus	Separate assets and liabilities	Whole enterprise
Direction of measurement	*Ex post* (looking to the past)	*Ex ante* (looking to the future)
Basis of measuring assets	Historical cost less amounts written off	Future cash flows discounted
Basis of measuring profit (loss)	Revenue less expenses	Closing net asset valuation less opening valuation

goodwill is a 'separate' asset; the measurement of some assets and liabilities looks partly to the future; not all assets are measured at historical cost; and some profits (or 'gains') do not depend on sales revenue. Even so, the general thrust of accountants and economists is clearly different.

1. Economic income

a. Capitalising future income

Irving Fisher (1906) first explained the process of deriving capital values from estimates of future income (suitably discounted), based on the proceeds from selling goods or services derived from a capital asset. Figure 5.1 outlines the process.

The metaphor of the tree (capital) and the fruit (income) can mislead. It substitutes physical things for money values, and implies that income flows almost automatically from capital. In fact changes in any one of six aspects would affect the tree's (present) value:

1. the *amount* of fruit the tree yields per year
2. the *number of years* the tree will go on producing
3. the *timing* of the yield
4. the *quality* of the fruit
5. the *value* of the fruit
6. the *discount rate* between the future and the present.

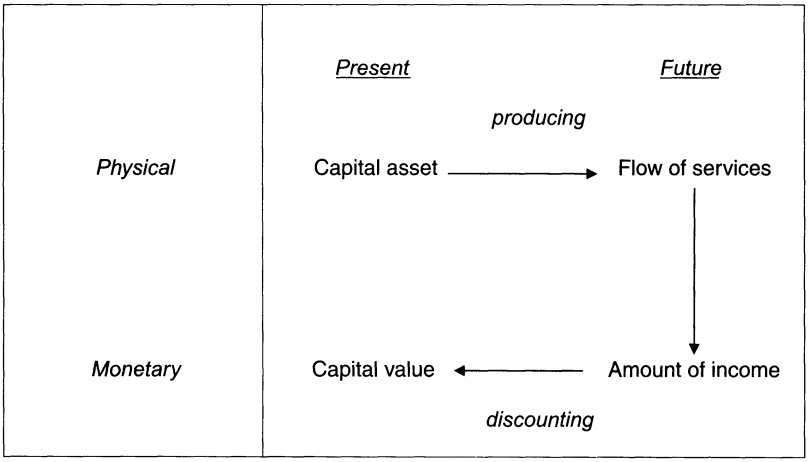


Figure 5.1 The process of valuing an asset

In the market system, cost does not *determine* value. Archbishop Whately (1832, p. 253) said: 'Pearls are not valuable because men have dived for them, but men dive for them because they are valuable.' The expected selling price sets an upper limit on how much it is worth spending to produce a good for sale (see Figure 3.2). Henry Ford reckoned he could sell Model T cars for $500 each if only he could get the production cost down below that level. That, according to the story, is what led him to invent the assembly line! And in a competitive market it may be difficult for sellers to charge buyers prices much exceeding the total cost of production, in other words to make very large profits.

To calculate capital value, in principle one estimates the *amount* and *timing* of future cash flows, and discounts them at a suitable rate. This is the so-called Discounted Cash Flow [DCF] method. The trouble is that this method involves two potentially large margins of error. Everyone who has ever tried it knows that guessing the amount and timing of future cash flows in an uncertain competitive environment is extremely difficult. Even doing so for the next 12 months is challenging enough, let alone for the next ten or more years.

In the words of Ecclesiastes: '... the race is not to the swift, nor the battle to the strong, neither yet bread to the wise, nor yet riches to men of understanding, nor yet favour to men of skill; but time and chance happeneth to them all.' I recall a large US company which tried to recognise uncertainty by making not just one but *three* forecasts for large capital projects: 'optimistic', 'best guess' and 'pessimistic'. Very laudably it also checked up after the event; and was surprised to find that most of the actual results were *worse* even than the 'pessimistic' forecast!

On top of that, choosing a suitable interest rate at which to discount those future cash flows is also subject to large margins of error (see section 3a below). Moreover, as a practical matter, there is a question how useful this approach would be for accounting:

> 'Imagine that all future cash flows could be foreseen with certainty, and that they could all be linked to existing assets and liabilities. Would this facilitate an ideal form of reporting? It would certainly convert the balance sheet into a true statement of the company's economic net worth, which some accountants would regard as the Holy Grail. But it would be less obvious how to present the movements between one balance sheet and the next in an informative way. With perfect foresight, every year's balance sheet would be founded upon the same future cash flows. As a result, apart from

changes in the discount rate [*also presumably fully foreseen*] the reported performance for each year would be confined to the effects of rolling the forecast one year on, so that the current year's cash flows would fall out while the remaining ones were brought a year closer. That may be fine for a valuation model, but it doesn't provide much insight into the year's activity.' (Paterson, 2001, p. 101)

b. *Ex ante* and *ex post* income

Economic income is a residual derived from estimating capital value at the beginning and end of a period, after allowing for consumption during the period. It equals consumption plus any increase (or minus any decrease) in capital value during the period. Economic income depends mainly on estimates before the event [*ex ante*], while accounting profit is based mainly on actual transactions after the event [*ex post*].

Hicks (1939, ch. xiv) defined *ex ante* income as: the maximum amount someone can consume during a period and still *expect* to be as well off at the end of the period as at the beginning. He then goes on and discusses interest rates and changes in the purchasing power of money. But 'the difficulty in the above expression is, of course, the meaning of the term "well off"... [It] is equivalent to [a company] maintaining its capital intact. If we were granted perfect knowledge of the future, the quantification of this capital would be fairly clear. It would be the discounted net present value of all future net cash flows arising for the company.' (Sandilands, 1975, para. 100.)

According to Hicks, Income, as well as Saving, Depreciation and Investment 'are not logical categories at all, they are rough approximations used by the business man to steer himself through the bewildering changes of situation which confront him. For this purpose, strict logical categories are not what is needed: something rougher is actually better... Strictly speaking, saving is not the difference between income and expenditure, it is the difference between income and consumption'. Hence, in measuring *personal* income, there is a need for some measure of 'consumption' of durable goods such as clothing, furniture, kitchen equipment, etc.; and in measuring *business* income, a need for some measure of 'depreciation' of assets. Such measures can only be approximate in the absence of a perfect second-hand market for the goods in question.

Kaldor (1955, p. 57) pointed out that: 'Income is Consumption plus net Saving; the problem of defining Income is really identical with the problem of defining net Saving, which in turn is merely a different

aspect of the problem of what is meant by "maintaining capital intact".' This has caused some discussion in accounting: does it mean 'financial capital' or 'physical capital' (see Chapter 3, section 3b)? And if (as most people think) it is the former, should it be in nominal (money) terms or in 'real' (constant purchasing power) terms (see Chapter 4, section 2)?

When business prospects change, assets may no longer have the same value they had at the time of purchase and 'windfall' gains or losses can occur. Hicks argued that since these are not expected, they cannot affect behaviour, and 'income' should therefore exclude them. Hicks took his use of 'windfall' gains or losses from Keynes – who was talking in the first place only about windfall *losses* (Keynes, 1936, p. 57). Now these may well be unexpected by everyone – but the more important question is: does the *gainer* 'expect' (or at least hope for) windfall *gains*, even though 'the market' as a whole does not? For instance, Chester Barnard said: 'I am dead sure that capital gain prospect is a very fundamental part of business operation.' (Study Group, 1973, p. 235) Certainly accounting profit *ex post* must include so-called 'windfall' gains.

Hicks (1939, p. 187) concluded that 'it is not necessary to have an exact definition of income; something quite rough will do quite well'. Chapter 8 explores this insight further. And Solomons (1969, pp. 110–1) thought that, in evaluating income concepts, 'two qualities ... outweigh all others in importance, their usefulness and their practicality.' These qualities are critically important in accounting practice, if not in economic theory.

2. Historical cost accounting profit versus economic income

The first step in measuring accounting profit for a period is to determine the amount of 'realised' sales revenue. Then accounts match most costs against current revenues. Thus historical cost [HC] 'accounting profit' largely, though by no means entirely, derives from *backward-looking* reports of events and transactions.

But the matching process partly applies to *future* periods as well as to the current one. Accounts 'carry forward' costs on the balance sheet as assets only if there is reason to expect future cash inflows against which to match them. In effect, under the 'recoverable cost' approach, most assets carried forward on the balance sheet are prepaid expenses. This is obvious, for example, in the case of insurance or rent; but we may also regard depreciable tangible fixed assets largely as 'prepaid depreciation'.

No single measurement of income is likely to suit all users of accounts for all purposes. Hence accountants tend to stress ease of preparation and convenience for readers. That means preparing accounts, within moderate time and cost constraints, which most users can understand, even if they only give a rough idea of past performance. One practical reason for reluctance to change traditional HC accounting practice is that most readers of accounts have long become used to the conventions. Familiarity is a big advantage – which is to say that *unfamiliarity* is a big *disadvantage*.

Accounts often match costs against current revenues; but where matching is too uncertain, accounts will write off costs as current expenses, even if their *purpose* is clearly to benefit future periods (see Chapter 2, section 6). And some other expenses are also written off in the current period where there is *no* current or future revenue against which to match them. (For example, the cost of flying a sales team to Brazil seeking a large order that they fail to get.) Because of this, it would be more accurate to describe the profit and loss account as the 'profits and losses account'.

In accounting, (equity) capital is the residual from *ex post* estimates of separate net assets, while economic income is the residual from estimates of *ex ante* overall capital values at different dates. Treynor (1972, pp. 41–3) pointed out that for accountants to accept the Hicks approach would be absurdly circular: first to calculate changes in the equity value, then derive an income figure, and finally 'capitalise' that income to calculate the equity value!

In general HC accounting ignores possible future events entirely until they are thought sufficiently probable to be wholly included. It tends to be an 'all or nothing' system. Economic income, in contrast, includes *all* expected future events, including gains which are 'unrealised', but in effect applies higher discount rates to less certain future amounts.

Accounting profit depends on past actual transactions which auditors can verify, and on accounting treatment which is consistent over time. Economic income, on the other hand, represents changes in subjective capitalisation of estimates of *future* income. Both the estimates of future income and the discount rate to use are uncertain. Sensitivity analysis may help to reveal the robustness of the assumptions, but who is to decide how realistic they are? (Especially since the essence of making profits depends on two things: thinking *differently* from most other people – and being *more right*!)

There is also the question of *timing*. Does a business 'make' a profit when it buys something it *expects* (not just hopes) to sell at a profit; or

only when the sale actually takes place? Or is it even earlier, when a business person first has the *idea* of buying or making something with a view to selling it at a profit? Accountants, being 'prudent', prefer to say: 'There's many a slip twixt cup and lip.' (Enron notoriously took a much more 'optimistic' approach – see Chapter 3, section 4)

3. Interest on equity capital

a. Calculating the cost

There is a well-known model, due to J.B. Williams (1938), for valuing equity shares: estimate the amount and timing of future after-tax dividends to shareholders [D] and discount them at the 'cost of equity capital' [k]. If current annual dividends grow at a *constant* rate [g], this simplifies to: Value = $P_0 = D_1/(k - g)$. Hence the cost of equity capital (k) = $D_1/P_0 + g$. In words: the cost of equity capital equals the current dividend yield (based on the end of Year 1 dividend) plus the expected (constant) annual rate of growth of dividends per share. With a constant dividend cover [E/D] or dividend payout ratio [D/E], the growth rate in dividends per share must be the same as the growth rate in earnings per share. But forecasting future earnings is not easy.

A more recent alternative approach is the Capital Asset Pricing Model [CAPM], which says a company's (real) cost of equity capital is: 'the (real) risk-free rate of interest plus a premium comprising the company's beta times the equity risk premium for the whole market'. But each of these three variables is subject to a significant margin of error.

The (real) risk-free rate of interest is not beyond dispute. In the UK the yield on long-dated index-linked government debt, a widely-used measure of the (real) 'risk-free rate', recently fell below ½ per cent a year. As a result, pension fund liabilities computed using this rate appeared to be extremely high. Two per cent a year would perhaps be a more 'normal' level, which would considerably reduce the present value of those liabilities, since such calculations are extremely sensitive to even small changes in the interest rate used. But, for all its problems, the 'risk-free' rate is less open to question than the two components of a company's equity risk premium.

A company's 'beta' is normally computed on the basis of 60 monthly readings (an arbitrary convention) over the past five years. They show the correlation between the 'excess' return (above the risk-free interest rate) on the company's equity shares and the excess return on the whole market. Betas of single companies can vary considerably over time, while portfolio betas are more stable. So past 'actual' betas of

single companies may not remain the same in future, though that is often the implicit assumption.

What about the equity risk premium for the market as a whole? Here there is even more dispute. Over the second half of the twentieth century, between 1955 and 2000, the UK annual equity risk premium has averaged about 8 per cent. Many academics (including me) reckon this is a reasonable basis for guessing the future. In contrast, many practitioners suggest an equity risk premium today of more like 3 per cent.

Dimson *et al* (2002) undertook a wide-ranging review of historical excess returns on equity securities in 16 different countries over the whole of the twentieth century. They argued that the large risk premia achieved during the second half of the twentieth century were due to unprecedented growth in productivity and efficiency over the second half of that period; so they suggested that corporate cash flows 'almost certainly' grew faster than investors anticipated. Assuming no repeat of such a performance, they proposed reducing the *ex ante* risk premium required in future by 1.7 per cent.

Secondly they asserted that 'the economic and political lessons of the twentieth century have surely been learned', which leads to a further 0.6 per cent assumed fall in the required risk premium. But this is indeed a 'triumph of the optimists'! Those of us who believe in portfolio theory might well argue that Europe's prosperity over several centuries has been largely due to its *diversity*. So the emergence of a putative United States of Europe, with a 'one size fits all' government policy in many areas, looks more like a *high*-risk project, than a low-risk one. Hence I prefer a forward-looking annual UK equity risk premium considerably higher than Dimson *et al*'s 3.7 per cent, namely the 8 per cent which many textbooks still suggest and which was actually achieved in the UK during 1955–2000.

But none of us can be very confident in trying to answer the question: to what extent will the future be like the past? It is one thing to estimate 'probabilities' of risks when dealing with known chances, such as when spinning a roulette wheel. It is quite another when dealing with unique events, where, as so often in business, frequency statistics simply don't apply. Of course one can say: 'I reckon the chances are one in five' – but all that amounts to is a quantified guess.

For example, can we really expect another long period of unanticipated inflation, which in the second half of the twentieth century contributed to a large excess real return on equities over government securities? (This is mainly because the real return on government securities in such cir-

cumstances can be *negative* for periods of several years.) There are experts who say 'inflation is dead'; but that is precisely the attitude that can cause inflation, if it does happen, to be 'unanticipated'.

I remember an economist colleague of mine at Cranfield, knowing of my interest in inflation adjustments to accounts (see Chapter 4), exuberantly writing precisely those words on the new white board in my office when we moved into our brand new building in 1978. (Unfortunately by mistake he used an indelible pen, so it was not easy to remove his erroneous assertion!) In the next 30 years the pound lost more than 75 per cent of its 1978 purchasing power, representing an average rate of inflation of 5 per cent a year. Inflation's 'death' had been greatly exaggerated!

On the other hand, it is probably true that taking a period much longer than one year (the basis for many of the calculations) could significantly reduce the size of the equity risk premium. At all events, the existence of such a wide gap between academics and practitioners makes any estimate of the cost of equity capital for the whole market little better than a mere guess. For the whole 'market' (with a 'beta' of 1.00, by definition), the real cost of equity, assuming a real risk-free rate of 2 per cent, could vary at least between 5 per cent and 10 per cent. The range could be even wider for any specific company, with its own 'beta' also subject to a large margin of error.

b. Charging notional interest

There is one other possible adjustment to accounts which could bring 'accounting profit' more closely into line with 'economic income'. Accounts (whether HC or CV) do not normally charge any 'interest' on equity capital (as they do on debt capital). But the notional 'opportunity cost' of equity capital is certainly relevant in business, so one could argue that for that reason alone (quite apart from any others) reported accounting profits *overstate* real 'economic profit'.

In the same way, if the sole proprietor of a business wants to calculate how much profit or loss he has made, he will need to charge something as an expense in respect of any time he himself has spent working in the business. Otherwise part of what he calls 'profit' will really represent 'wages'. (There is no need to do this for tax purposes, as both forms of income – business profit plus imputed wages – will be taxable as his personal income.)

Consistent charging of interest on equity capital would increase the total cost of certain non-monetary assets, especially stocks and internally constructed fixed assets. It would give a more realistic picture of

the amount of capital tied up in those assets. But most of the interest on equity would be a 'general expense' in any period. It would affect after-tax profit, as it would not be an allowable deduction for tax purposes. (For a fuller discussion see Anthony, 1975.)

The concept of 'residual income' (also popularised as 'Economic Value Added', or EVA) is widely used in management (internal) accounting. Essentially it is derived simply by deducting notional interest on equity capital from reported accounting profits, though there are many variants of detail. Quite apart from the margin of error in the estimate of interest on equity capital itself, it is worth noting that the resultant 'residual income' figure is likely to be not only smaller but also far more volatile than 'accounting profit'.

Measuring the cost of equity capital is extremely difficult. My own view is that a real charge of 10 per cent a year (over and above inflation) is about right for many companies: this comprises a real 'risk-free' rate of 2 per cent plus an equity risk premium of 8 per cent. Some academics would pick a similar figure, though many business people believe the equity risk premium should be more like 3 per cent (giving a total cost of equity capital of 5 per cent). Taking 5 per cent (after tax) as the real annual rate of interest on equity capital (let alone 10 per cent) can make a big difference to 'net' profits.

Charging notional interest on the book value of shareholders' equity might often convert a reported accounting profit after tax into an economic loss. That assumes we simply take the Shareholders' Funds from the accounts as being the amount on which to charge this notional interest on equity capital. But adjustments for inflation (see Chapter 4) would *increase* the amount of 'equity', since some fixed assets will have been purchased years ago; as would adding back purchased goodwill, where it has been written off directly against reserves in earlier years.

6
Creative Accounting

Caveat lector
Let the reader (of accounts) take care

Most preparers of company accounts do their best to provide reasonably accurate and timely reports of financial performance and position. They draw up accounts on a consistent basis within the generally accepted rules. They intend their company's accounts, as the Companies Act 2006 requires, to give 'a true and fair view of the assets, liabilities, financial position and profit or loss'. In addition, independent accountants must audit the accounts of publicly-owned companies and express an opinion on them.

Given the need for a number of estimates in producing annual accounts, different subjective states of optimism or pessimism can lead to wide differences in the final results. These may well be perfectly innocent, but some company directors may succumb to temptations to indulge in 'creative accounting'. This may involve either disclosure or measurement, and it may affect the balance sheet or the profit and loss account or both.

Creative accounting may mean reluctance to make *full* disclosure, not necessarily willingness to make *false* disclosure. It is perhaps a pity that the term has acquired such a negative meaning, for in dealing with many problems in a fast-changing commercial world, accountants may often need to be genuinely 'creative' in using their judgement.

1. What is 'creative accounting'?

I take 'creative accounting', in its bad sense, to mean: 'Stretching to the limits the purported provision of "a true and fair view" in accounts,

while still claiming to observe the detailed rules.' That is like Stephen Potter's definition of gamesmanship: 'How to win at games without actually cheating.' (Outright fraud, which this chapter briefly discusses at the end, is different, but I believe it is relatively rare.)

Accountants who are 'creative' in this sense:

- interpret grey areas to their advantage
- seek out loopholes in specific rules; or
- dream up devices which regulators have not thought to forbid.

This may mean being either not as prudent or else not as consistent as one might wish.

By assumption we are talking about amounts that are material; but – in contrast to fraud (discussed in section 7 of this chapter) – there need not be any intention to deceive. Indeed, managers may sometimes be deceiving themselves (rather as politicians sometimes do).

Details of what comprises creative accounting may change over time as the rules change. 'One person's creative accounting is another's carefully considered judgement; one person's device to deceive is another's legitimate management tool; one person's systematic understatement of profits is another's application of the prudence concept.' (McBarnet & Whelan, 1999, pp. 6, 99)

It is not always easy for an outsider to spot creative accounting. One should be on guard for any change in accounting treatment or in auditors, especially where there is a new chief executive or finance director. Further pointers may be an unusual change in the trend of sales growth or profit margins, a definite increase in debtor days or stock days, or a merger or large acquisition.

Another sign of possible creative accounting is a significant discrepancy between reported profits and apparent cash flow. 'Profit is opinion, cash is fact.' There may be good reasons why profits for a period may differ from cash flow: depreciation differing from investment in fixed assets, or changes in working capital (especially stocks and/or debtors) being two of the most likely. But these differences should not normally persist for period after period.

Where reported earnings figures are thought to depend heavily on creative accounting, analysts often call them of 'low quality'. Analysts themselves have been known to use 'creative' language: their advice to 'hold' a security usually means 'sell'.

Accounting does need rules for people to follow. But Hayek (1973, p. 11) explained that workable rules can emerge without any committee designing or imposing them. Widespread agreement on accounting

principles such as 'prudence' and 'matching' emerged from more than a hundred years of practical experience. For many years there has been far more 'general acceptance' among professionals on these broad principles, which have changed very little, than there is now on thousands of pages of new accounting standards.

The regulators say they want companies to apply the 'spirit' as well as the *letter* of compulsory accounting standards. That would be easier if the UK Accounting Standards Board [ASB] had followed the Dearing Committee's 1988 suggestion for accounting standards to represent 'authoritative but not mandatory guidance on the interpretation of what constitutes a true and fair view' (Dearing, 1988, p. 18).

A recent revision of the Operating and Financial Review said it was designed to formulate and develop best practice; intended to have persuasive rather than mandatory force. Would that other accounting standards were as modest! Sir David Tweedie, now the IASB Chairman, would have preferred the (UK) ASB to limit itself to principles; but companies and auditing firms kept pressing the Board to spell out the details. This pressure stemmed from making standards *compulsory*.

The ASB ought to have ensured that its standards, and the principles on which they rest, were indeed 'generally accepted'. But in 1996 all the main UK accounting firms clearly had serious misgivings about several key elements in the draft Statement of Principles of Financial Reporting (Myddelton, 2004, pp. 121–5). These are outlined in Chapter 8. Yet the final version changed remarkably little. Following a flood of new and complex accounting standards many accountants must now cope with rules which they often either fail to understand or else disagree with.

One of the disadvantages of very detailed rules (as opposed to general principles) is that they tend to spell out exactly what a 'creative' accountant needs to do to get around them. Tweedie once said: 'some people *read* our [UK] standards more carefully than we *write* them!' (quoted in McBarnet & Whelan, 1999, p. 102). There is particular risk of creative accounting when the rules are not, in fact, generally accepted – but merely imposed from on high. (Similarly, most tax practitioners feel no moral qualms about (legal) tax avoidance – in contrast to (illegal) tax evasion.)

In the late 1980s and early 1990s there was a flurry of books about creative accounting: Griffiths, 1986; Jameson, 1988; Naser, 1993; Smith, 1992. They are worth consulting for details of practices that were common before being outlawed. After 1990, the ASB produced several standards which between them put a stop to many practices which gave creative accounting its bad name. For example, Table 6.1 sets out the key to the 'Accounting Health Check Table' in Terry Smith's 1992 book

Table 6.1 Contents of 'Accounting Health Check Table'

1.	Pre-acquisition Write Down	
2.	Disposals	1) Above the line
		2) Deconsolidation
3.	Deferred Consideration	
4.	Extraordinary & Exceptional items	
5.	Off balance sheet finance	
6.	Contingent liabilities	
7.	Capitalisation of costs	
8.	Brand Accounting	
9.	Changes in depreciation policy	
10.	Convertibles with puts & AMPS*	
11.	Pension fund surplus	
12.	Currency mismatching.	

*Auction Market Preferred Stock

(p. 185). It was also known as the 'blob' guide, because a black blob appeared against the names of companies using each of these devices.

Creative accounting can directly affect either the profit and loss account or the balance sheet or both, and relate to either disclosure or measurement. Disclosure may refer to the *extent* or to the *method* of presentation. Some people argue that as long as accounts disclose items somehow, careful readers of accounts can always adjust the numbers. But others see a big difference between giving readers 'a true and fair view' and giving them the *means to get* a true and fair view. And there is general agreement that even full disclosure cannot make up for defective *measurement* (IAS 1, para. 16).

Two old sayings contain a good deal of sense:

- If the numbers are late in being published, there may be a problem. Bad numbers take longer to add up! (Extreme example: the Zimbabwe presidential election at the end of March 2008 ... results not announced until the beginning of May!)
- If a number looks wrong, it probably is! That means: be willing to trust yourself and your own instincts. (And be willing to risk seeming ignorant by being prepared to ask 'obvious' questions.)

2. Incentives and pressures on managers

The pay of top managers has grown rapidly over recent decades, so that now it is not uncommon for them to get millions of pounds a year one

way or another. (When Reading FC was relegated from the Premier League in 2008, the manager, Steve Coppell, agreed to take a pay cut of £500,000 – leaving his new reduced pay at 'only' £600,000 a year!) Corporate managers' pay may comprise cash salaries, cash bonuses, stock options, phantom shares, pension rights and other financial benefits.

Many of these incentives are 'performance-related' and may partly depend on the amount of profits, or on share price movements which profits may influence. Perhaps this helps explain why Barings senior managers did not inquire too closely when Nick Leeson revealed abnormally high profits from Singapore: the size of their bonuses depended on his fictions. It may also be that they simply did not understand what was going on: there tends to be a 'generation gap' concerning understanding of derivatives. If senior managers are too old, and too 'strategic', to be able to keep tabs on relatively junior traders who are technically extremely smart and sometimes unscrupulous, there may be many more such accidents waiting to happen on a large scale. (A recent example was Société Générale in France.)

Relating management incentive schemes to reported accounting profits is asking for trouble if those involved have any influence on *measuring* the profits. Even apart from possible conflicts of interest, it also seems odd if top managers are supposed to be taking a long-term view. For the current year's profits are hardly likely to fully reflect that. If top managers are setting corporate strategy for years ahead, it makes little sense to reward them so lavishly by reference to highly fallible short-term measures of company performance. It hardly needs saying that the validity of performance incentives is undermined if the hurdles are lowered retrospectively.

Today's top managers are very keen to meet short-term stock market forecasts of profits, whether annual or quarterly. Yet, as we have seen, annual profits are subject to large margins of error, and profits over shorter periods of time proportionately even more so. A *Financial Times* report (27 February 2004) revealed that far more companies beat quarterly earnings (per share) estimates by a single penny than miss them by a penny. That hardly suggests accident.

No business managers can honestly be expected to predict their company's annual profit (still less its quarterly profit) to within a tiny margin of error. The uncertainties of the size and timing of business events (and accounting for them) are too great. (Outsiders often overlook the importance of *luck* in business.) There is a danger that some managers may seek to exploit the margins of error inherent in accounting

practice to massage the earnings they choose to report. Such 'aggressive earnings management' can become a vicious cycle: the more it becomes the norm, the more pressure there is on everyone to achieve earnings targets. A number of companies have used various devices to make growth in earnings seem more regular, and hence appear less risky, than it really is. The intention is to lead to higher share valuations than are justified. (Thus the *absence* of volatility may itself be a suspicious sign.)

It is only human nature for retiring chief executives to want to avoid disclosing bad news in their final period; while incoming ones in their first period might want to clear the decks for reporting good future profits by all sorts of special write-offs. The average life span in the top job is now only about four years, so changes in chief executive may affect accounts in this way fairly often.

Certain incentive schemes may reward one 'good' year and one 'bad' year better than two 'average' years; in which case it may pay to engineer a bad year in order to pave the way for reporting a good year next time (or *vice versa*). In the same way, senior managers with stock options may welcome volatility – which can add to their value – even though that is unlikely to be in the interests of shareholders as a whole.

A business (especially an unlisted one) might want to *under*state profit in order to reduce tax. (The familiar 'cash' versus 'profit' dilemma.) Another reason for understating current profits could be to save tax if the rate of tax on company profits is expected to fall in future. But by its nature such a change is infrequent and hard to predict.

Managers, seeking to buy (more) shares in the company they work for, might wish to understate profits in order to result in a lower-than-justified share price. The future may not be like the past (trends go on until they stop!), but people often assume that it will be. Keynes (1936, p. 152) referred to the convention 'that the existing state of affairs will continue indefinitely, except in so far as we have specific reasons to expect a change'. More realistic was J.P. Morgan's 'prediction' about the future of the US stock market: 'It will continue to fluctuate!'

Apart from wishing to influence the amount of profit or loss, managers may also wish to affect the amounts on the balance sheet. This may be because debt covenants require a certain maximum level of debt/equity ratio or a minimum level of current ratio.

Thus a variety of possible motives is apparent. Managers may be seeking to benefit the company (and its shareholders) at the expense of 'outsiders', such as the tax authorities or lenders. Or they may be seeking to benefit themselves personally at the expense of shareholders (either current or future), for example by discouraging 'predators' (this

is management-speak not shareholder-speak!) – a well-known possibility in agency theory due to an absence of 'goal congruence'.

Creative accounting can affect measurement and/or disclosure in the profit and loss account and/or the balance sheet. The next sections discuss how managers might overstate or understate either profits or net assets.

3. Profit and loss account

a. Overstating profits

The first commercial job I ever had, after becoming a chartered accountant, was as assistant to the Chief Accountant of a small listed company. On my first day the Managing Director said words to the following effect: 'Welcome aboard. We've had a bad year, and we want to report a good year. Do what you can!'

We did three things, two of which involved action and measurement:

- We changed the year ends of some subsidiaries, to reduce their tax bill. This was a perfectly legitimate way to increase profit after tax, though it was a one-off effect. One might argue we ought to have disclosed it as being 'exceptional'.
- We increased the overhead add-on in valuing stock, which was a material change of accounting treatment. But we did not reveal it, which is hard to justify; nor did we restate the previous period's results. I never understood why the auditors allowed this treatment (or, rather, why they failed to qualify their audit opinion, the accounts themselves being the responsibility of a company's directors, not of the auditors).

Overstating sales revenue is likely to result in overstating profits. On this topic one regulator said: 'There's bound to be room for honest debate and difference of opinion.' There are several ways to overstate sales. Companies may treat revenue as earned even if some goods or services have not yet been delivered. Other methods may involve channel stuffing but ignoring possible future sales returns, or including sales subject to side agreements which render them unenforceable.

'Channel stuffing', like some other practices, can easily become a treadmill. Having done it one year, there is a need to do it again, perhaps to a slightly greater extent; or else allow next year's profits to suffer. It can also have a corrupting impact on relationships with customers. Subsequently giving it up without admitting what has been going on is hard.

Another method of overstating profits is to under-charge expenses, for example by under-providing for bad debt losses, using over-long lives to depreciate fixed assets, under-providing for future liabilities under warranties, or choosing to capitalise expenses or small items of expenditure (e.g. on repairs or computers). On such matters subjective estimates leave wide scope for different views, and for changing approaches from one year to the next. The UK tax rules themselves disallow depreciation on certain assets, such as office buildings. The effect is often to overstate companies' profits for tax purposes, hence to increase the effective *rate* of tax on profits.

There can also be scope for mis-stating subjective estimates of the net realisable values of stocks, especially work-in-progress. This may avoid or reduce what would otherwise be the need for write-downs below cost. In this area, as in some others, auditors will not always find it easy to provide an informed check on managers' judgements.

Capitalising product development costs increases that period's profits, and reduces those of later periods. The amounts can be large, and can vary from year to year. But so-called 'revenue investments' such as staff training and advertising are more likely to be fairly stable over time; and anyway it would be rare to capitalise any part of them.

Capitalising debt interest, in respect of self-constructed fixed assets, delays charging interest as an expense. It may risk imprudence, but perhaps it does a better job of matching. If done consistently it probably makes little difference to the amount or trend of profits, though somewhat increasing the net book value of assets.

Moving P&L items from one period to another in any of these ways will not affect a company's total lifetime profits, but it can affect apparent *trends*. Therefore using consistent accounting treatment over time is very important. In the long run any over-provision will reverse itself; but often it is the short term that a 'creative accountant' cares about. Keynes said of monetary theory that: '... when all is said and done, [it] is little more than a vast elaboration of the truth that "it all comes out in the wash".' (Keynes, 1930, p. 366) But, of course, he had earlier famously said: 'In the long run we are all dead.' (Keynes, 1923, p. 65)

The rules say, very sensibly, that companies should disclose any material change in accounting treatment, together with an estimate of how much difference it makes. There can sometimes be good reasons for changing a particular accounting treatment; but failure to disclose it can be misleading.

Another topic where there is plenty of room for subjective judgement is impairment reviews for goodwill. Because it can be so subjective, it may be difficult for auditors to find a solid basis for a view on

this. The other side of the coin, however, is that companies will have to disclose any write-off, so all readers can see that it is abnormal. Nobody could regard impairment as a 'normal' operating item, which they might if it were systematic amortisation of purchased goodwill.

So far we have been discussing the accounting treatment of given transactions or events. But managers may also change their 'real' behaviour in order to affect the accounts. For example, deferring discretionary expenditures may have the effect of increasing the current period's profit at the expense of future periods. (It is not always clear whether deferring 'desirable' expenditures will in fact harm, or delay improvement to, profits in future.)

Accounting standard IAS 2 requires manufacturing companies to carry forward a proportion of fixed production overheads as part of the 'cost' of closing stock (rather than charging them as an expense in the current period). This treatment may allow a company to increase profits for a period by increasing production in that period. The result is to increase the proportion of fixed production overheads carried forward as an asset in the valuation of closing stocks, and reduce the proportion expensed in the current period. Again, however, that policy may be damaging in the longer run.

Some family companies charge too little for the owners' wages, not always on purpose. The result may be to suggest that a business is more profitable, or less unprofitable, than is really the case. This can be especially relevant if such a company is put up for sale.

b. Understating profits

Over-providing for expenses which depend on subjective estimates, such as bad debts, stock write-downs or depreciation, in effect sets up a hidden reserve. It may seem to be prudent, but it opens up potential to overstate profits in later years by drawing down part of such provisions. Thus it may be possible to increase apparent growth rates. Hence charging declining balance (accelerated) depreciation, rather than straight-line, may not be quite as 'conservative' as it is sometimes painted.

At one time 'big bath' (or 'kitchen sink') write-offs on acquisitions or restructuring had a similar effect. Accounts tended to show them 'below the line' as 'extraordinary' expenses, so (under the then rules) they could be ignored in computing earnings per share. But writing-back any over-provisions in later years would often reduce *normal* operating expenses and thus *increase* earnings per share.

In its final years in government ownership, Jaguar Cars wrote off its fixed assets too quickly. The result was for a time to understate both profits and the net book value of fixed assets. In consequence, for two

or three years afterwards the company charged virtually nothing for depreciation of fixed assets. It had already fully written them off even though they were still in use. Was this being 'prudent'? Not if the potential private sector buyers were willing to pay a standard multiple of overstated profits! (Arguably they should have been looking at estimates of future cash flows not at past reported profits; and possibly as part of a larger group, not as a stand-alone company.) We cannot tell whether it was deliberate in this case. But strictly speaking a company should adjust its estimates of fixed asset lives if it discovers they are materially wrong.

If managers are seeking to acquire more shares in their company, either on their personal account or as part of a co-ordinated management buyout (MBO), they may deliberately seek to understate current profits in an attempt to reduce the purchase price of the shares. Such conflicts of interest are often potentially present in MBOs.

Where managers are also owners, as in many family businesses, they may tend to treat some personal expenses as if they were genuine business expenses. (Or at least give themselves the 'benefit of the doubt' in marginal cases.) This can be quite easy to do, as the distinction is not always clear-cut. The motive could also be to reduce the company's tax bill without giving rise to any personal tax liability. Where managers do not own all the equity, this would also have the effect of doing down the outside shareholders. This can cause problems when family companies are taken over by listed companies, if the former owners stay on for a while and continue their 'normal' practice. (In blatant cases, of which there have been several in the United States recently, it is simply *fraud*.)

There can be creative accounting in the public sector too. 'Hospitals and primary care trusts prepaid suppliers several hundreds of millions of pounds and hid money in an effort to bring down the National Health Service's surplus for last year in line with the forecast £1.8 bn. Senior NHS managers said that, without such action, the declared NHS surplus for England in the period was more likely to have been closer to £3 bn.' (*Accountancy Age*, 29 May 2008)

4. Balance sheet

a. Overstating net assets

There are two main kinds of creative accounting in the balance sheet. Perhaps the most obvious is to overstate assets by failing to accelerate the write-down of assets which are no longer worth as much as their

net book value. This would make the balance sheet look sounder than it really is. It would overstate shareholders' funds, hence understate the debt ratio. Examples might relate to tangible or intangible fixed assets, stocks or debtors.

Understating liabilities, or leaving liabilities off the balance sheet altogether, would have the same effect, and it too would make the financial position look less risky than it really is. Some people have accused the British government of doing this with its Private Finance Initiative [PFI] schemes, whose total extent is massive.

At Marconi's 2003 AGM, the finance director saw no need to write down further the £5,400 million book value of goodwill. It mainly comprised the cash price paid for two US high-tech companies acquired at the height of the dot.com boom. By 2003 Marconi's own share price had already fallen by 90 per cent from its one-time high of £12. Next year Marconi's accounts wrote down the goodwill by a further £3,831 million and stock by £670 million. Maybe the finance director was 'right' in 2003, but, with hindsight, it looks as if he was a long way wrong!

Another way of making a balance sheet *look* stronger is to revalue fixed assets upwards (which is allowed in the UK). An enterprise recently increased its apparent 'debt capacity' by £9 million, even though nothing had really changed. It revalued its (non-depreciable) land upwards by £22 million, while the self-imposed debt capacity remained at '40 per cent of stated assets'. It could be argued that such a change does not overvalue fixed assets: instead it is failure to revalue them (by continuing to state fixed assets at cost) that, in effect, undervalues them.

This example does illustrate the potential for misinterpreting words. In historical cost accounting, the 'book value' of non-depreciable fixed assets (such as land) is normally cost. Yet in economics, 'cost' does not mean the same as 'value' (see Figure 3.2).

It may also be possible to somewhat flatter the year-end cash position by delaying certain payments. (Though the result will be to leave short-term creditors higher than they would otherwise be.) No doubt such 'window-dressing' will tend to sort itself out within a few months, but the company may not be reporting then. The trouble is that, as noted earlier, once you start playing this sort of game, you probably need to repeat it every year.

Loan covenants may refer to a minimum level for the current ratio (current assets [CA] divided by current liabilities [CL]). If CA exceed CL, net working capital is positive and the current ratio will exceed

1.00. It can be *increased*, perfectly legitimately, by using cash balances to pay off some CL. For example, if CA are 120 and CL are 80, net working capital is + 40 and the current ratio is 1.50. Using 20 cash to pay off 20 CL leaves net working capital still at + 40 (now 100 less 60); but the current ratio will *increase* to 1.67.

The recent changeover from UK accounting standards to IFRS has caused finance directors some worries, as it isn't always clear whether loan covenants and the like would legally be governed by the former standards or by the new ones. Similar problems would be likely to arise if a single global set of accounting standards were to emerge (whether IFRS or US GAAP).

A recent study (Record, 2006, pp. 13 and 72) has shown that official estimates of public sector pension liabilities, amounting at March 2005 to £530 billion, 'woefully underestimate the true liability that taxpayers owe to public sector workers in the form of future pensions'. The author notes the contrast with private sector pension schemes, which now have to disclose their pension liabilities transparently. He reckons that as at March 2006, the government estimate would be about £639 billion while his own estimate (using more realistic interest rate assumptions than the government uses) would be £1,025 billion. If he's right, that's a difference of nearly £400 billion – which one might call a Record margin of error in accounting!

b. Understating net assets

Another approach to creative accounting is to understate assets or overstate liabilities. This leaves 'hidden' or 'secret' reserves on the balance sheet. I once worked for a big American company which reckoned that in all it had one full year's profit tucked away in various hidden reserves. In a bad year it could secretly draw on them to the extent needed. Anglo-American accounting, which emphasises the profit and loss account, frowns on such a practice, precisely because it can be used later to flatter profits and mislead readers of the accounts. But continental Europeans, traditionally focusing more on the balance sheet and the protection of creditors, might not mind so much: indeed, they might even welcome such 'ultra-prudence'.

From a balance sheet viewpoint, secret reserves may seem to be prudent. But when the focus is on profit rather than financial position, excessive prudence can be almost as dangerous as excessive imprudence. In the extreme it can mislead shareholders (and others), by failing to disclose current poor performance. It can allow companies to draw secretly on hidden reserves which were built up by understating

profits in previous periods. The problem is the lack of transparency in shifting profits, in effect, from one year to another.

A famous British case concerned the Royal Mail Steamship Company. In 1931 the company's accounts drew on secret reserves to convert an 'actual' loss for a particular year into a reported profit. The profit and loss account disclosed that the basis of measuring profits 'included the adjustment of taxation reserves'. The chairman (Lord Kylsant) and the auditor (Mr. Moreland) were both acquitted of wilfully deceiving the shareholders. Distinguished accountants gave evidence of widespread similar practices in the shipping industry at the time. (These practices later changed, long before accounting standards came in.) (Hastings, 1962, pp. 452–61)

When UK accounting standards permitted companies to write off the cost of purchased goodwill directly against shareholders' funds, nearly every company did so. This enabled them to avoid what many people thought a better policy in theory, namely expensing regular goodwill amortisation against (after-tax) profit. The widespread eagerness not to do this suggests what pressure companies are under to report high, even if fictitious, profits. I regard it as an example of accounting standard-setters legitimising bad accounting. The practice led many companies both to overstate profit and to understate shareholders' funds, thus significantly exaggerating their rate of return on equity.

5. Presentation and trends

The profit and loss account discloses 'exceptional items' separately, either in the accounts themselves or in the notes. Including unusual income or excluding certain expenses can make normal profits look bigger. In my first commercial job (see section 3 above) the third thing we did was to report a profit on the sale of land as part of operating profit. This was misleading not because it falsely described the item itself, but because it increased the amount of 'normal' profit. Even though an alert reader of the accounts should have spotted it, we ought to have reported this profit as 'exceptional'.

Before FRS3 in 1992, UK companies could report 'extraordinary' profit or loss items 'below the line'. Some years ago Lucas Industries received a one-off refund of £150 million from its pension fund surplus. This was liable to corporation tax at 40 per cent; but the company included the *net* amount of £90 million in *before-tax* profits! That was indeed 'creative' disclosure. It seemed to be a rare example of a truly 'extraordinary' item which should have been excluded in measuring earnings per share; but the ASB disagreed.

Income-smoothing might be less pervasive if companies were still able to report 'below the line' items. It is true that the former system was less than perfect, but so are most systems (including the present arrangements). Indeed banning income-smoothing altogether might even tempt some companies to do things (to affect reported results) that they would not otherwise do. This is sometimes called 'real' smoothing, as opposed to 'artificial' smoothing which does not affect cash flows.

'Income-smoothing' aims to make an entity's profit performance seem less volatile than it 'really' is. Both managers and shareholders tend to like the practice, which may be permitted or sometimes even *required* by accounting standards. It spreads income between accounting periods, often by adjusting expenses; for example by providing for deferred tax ('tax equalisation') or spreading pensions adjustments over the remaining working lives of existing employees. It may also allow managers to present a more 'accurate' *trend* of results over a number of years. In this respect one can regard it as a potential *signalling* device – like references to 'underlying profit' which companies now often report as a separate item.

The FASB's Conceptual Framework says past accounting earnings provide a better basis than past cash flows for predicting an enterprise's future cash flows. If so, and if predicting future cash flows is the primary purpose of accounts (see Chapter 3, section 1), then perhaps the *more* companies smooth earnings the better. Some people believe that cash flows are less open to 'creative accounting' than accrual accounting, but this is not beyond dispute. It may sometimes be possible either to bring forward or to defer cash payments or receipts to change the period in which they occur.

The modern tendency for some companies and analysts to focus on EBITDA [Earnings Before Interest, Tax, Depreciation and Amortisation] can be misleading. There may be some reason to report profit (earnings) before interest and tax [PBIT or EBIT], as 'operating profit' before financing items; but it seems hard to justify highlighting 'profit before depreciation'. (After all, companies rarely report 'profit before *wages*'!) In stewardship accounting on an accrual basis, depreciation and amortisation are perfectly legitimate expenses, though dependent – like so many other items – on estimates.

People sometimes try to defend EBITDA on the grounds that it is closer to reporting cash flows. Accounting standards (unlike the 2006 UK Companies Act) now require companies to publish separate cash flow statements. But even the government has recently changed (after

some three hundred years!) from Cash accounting to Accrual (or Resource) accounting. If you want to add back depreciation charged as not being cash outlays, perhaps you should deduct investments in fixed assets, which are cash outlays. Another possible reason for using EBITDA may be that some people think equity shares look cheaper with their market capitalisation a lower 'multiple' of EBITDA than of profit after tax.

Often it is *trends* over a number of years that are of interest. With a long series of accounting data, it may be hard to tell where the past data came from and to what extent comparing the numbers over time is possible. In reviewing highlights of past performance and financial position, fewer than five years may not be enough to reveal trends over time; while more than ten years may involve out-of-date numbers after conditions have changed. Share splits or bonus issues, which affect earnings per share numbers, are nearly always silently adjusted for, in trend statistics, to permit comparisons with earlier periods. But inflation usually isn't.

There are some examples of 'good' creative disclosure. Thames Water splits its 'trade creditors' figure in the balance sheet between creditors for regular supplies and creditors for fixed assets. Without such a split you cannot estimate the average number of days' credit owing to regular suppliers. But few other companies follow the same practice.

Some companies in specific industries choose to give helpful extra disclosures which are not required by accounting standards. For example, mining companies give details about ore grades, and pharmaceutical companies spell out the progress of individual research programmes. Similar practices often tend to become industry norms. Such non-financial measures may sometimes be more revealing than financial measures.

6. Politics

You can get 'creative accounting' in politics too. At the start of the Marshall Plan, one of the chief European figures said: 'We shall produce any statistic that we think will help us to get as much money out of the United States as we possibly can. Statistics which we do not have, but which we need to justify our demands, we will simply fabricate.' (Morgenstern, 1963, p. 21) That is more blatantly 'creative' than most examples!

On becoming prime minister again in 1951, Churchill was amazed to discover that the post-war Attlee government had spent nearly

£100 million [**£2,500 million** in 2008 pounds] on atomic energy for military purposes. Parliament had approved the expenditures under various concealed headings. The same sort of thing, on a smaller scale, happens with government spending on the secret services. Later the Central Electricity Generating Board's accounts obscured the amount spent on civil nuclear energy by *combining* it with expenditures on fossil fuels.

Accounting for the costs of civil nuclear power was unsatisfactory over several decades. Lord Robens complained that while the costs of coal were known, those of nuclear energy were not. In 1962 the Powell Committee was set up to reconcile the different views about the economics of nuclear and conventional power, but no record of its discussions was ever published. Not only were estimates of nuclear power costs extremely dubious, but not being in the public domain they were usually not even open to criticism. Dieter Helm (2004, p. 188) said: 'The scale of the losses will probably never be known.'

Just before the general election in October 1974, Denis Healey, the Chancellor of the Exchequer, adapted the change in the Retail Prices Index in the three months between June and September 1974 (from 108.7 to 111.0), and 'grossed it up' to an 'annual inflation rate' of 8.4 per cent. That may seem high from today's perspective: it seemed very *low* then. But the real rate of inflation was much higher than that, as he well knew – probably running at around *20 per cent* a year. Mr. Healey himself in July 1974 had reduced the rate of Value Added Tax from 10 per cent to 8 per cent, with obvious immediate effects on many retail prices and therefore on the Retail Prices Index!

During the run-up to his first Budget in 1979, Sir Geoffrey Howe discovered an error of £0.25 billion in the calculation of the Public Sector Borrowing Requirement [PSBR]. 'The resulting consternation was luckily short-lived. For I learned that this particular statistic (the PSBR) had long been measured (who can wonder?) only to the nearest £0.25 billion. This meant that a shift of only a few million pounds – say from £123 million to £127 million – could have a much larger apparent effect. It didn't need a great deal of creative accountancy to remove this particular error.' (Howe, 2008, pp. 131–2)

The British and French governments largely stood aloof during Eurotunnel's difficult progress in constructing the Channel Tunnel. But in order to help without *cash* subsidies, they extended the 55 year concession period. In 1993 the Conservative government increased it by ten years; then in 1997 the Labour government extended it by a further 34 years to 99 years. (In each case, of course, in agreement with

the French government.) Using a high enough discount rate can make the present value of these giveaways seem quite small, if indeed they are ever shown at all as part of the 'cost' to government.

Spending on the Millennium Dome failed to include Lottery Fund money as 'government' spending. Yet in June 1996 the Conservative government announced that if necessary it would extend the Millennium Commission's life *beyond* 31 December 2000. That would legally enable it to receive further National Lottery money to bail out the exhibition's expected losses, and amounted to an unwritten government guarantee. This was an explicit link between the government and lottery grants, which the politicians tried to pretend did not exist. (Myddelton, 2007, p. 157)

When the single European currency was about to start in 1998, Germany cheated on the amount of government debt; and France cheated on the annual deficit. But all eleven countries were deemed to have 'qualified' for the single currency anyway, even though – despite the cheating! – all but one (Luxembourg) of the countries *failed* to meet the targets laid down in the Treaty of Maastricht. Later it turned out that Greece, the twelfth country to join the euro, a few years later, had fiddled its deficit numbers quite badly. To which the only possible response was the equivalent in Euro-speak of: 'Join the club!'

Recent Conservative and Labour governments have operated PFI schemes (referring to the Private Finance Initiative). The government claims it has transferred nearly all the risks to private contractors, which justifies omitting the liabilities from the 'government balance sheet'. But many observers are dubious. In 2006 the Office for National Statistics ordered the government to include the whole of London & Continental Railway's £5 billion debt (incurred in building the Channel Tunnel Rail Link) on the public sector balance sheet. (*Financial Times*, 15 November 2006.) We may not know for sure who is really bearing the risk until something goes badly wrong.

A recent striking example (of non-disclosure intended to mislead) by UK political parties was the conversion of donations (details of which they had to disclose immediately) into 'loans' (which might never be repaid – but which seemingly did *not* have to be disclosed). This may have been tempting because some of those advancing money might be in line for a life peerage; yet it is a criminal offence to 'sell' honours.

Gordon Brown, when Chancellor of the Exchequer, moved the goalposts in restating when the current 'economic cycle' started and finished. He did this in order to pretend he had stuck to his self-imposed 'golden

rule' on government deficits and government borrowing. For example, in 2005 the Labour government moved the beginning of the 'economic cycle' forward by two years, from 1999 to 1997. Then, later, the government moved the end of cycle: in 2006 they were expecting it to end in 2009, but subsequently announced that it had ended in 2006. A nice example of creative accounting with time periods!

7. Fraud

As I define it, creative accounting is within the rules (though sometimes only just). But fraud breaks the rules. The behaviour of government ministers provides an analogy. Sometimes they find themselves in difficult situations where, in fact, they want to mislead or deceive their audience. But the rules do not allow them to tell lies in the Houses of Parliament. So telling lies is tantamount to 'fraud', while anything less, however misleading, is 'creative accounting'.

Actually 'fraud' is a very broad term, covering 'anything from a false expense claim to a fictitious overseas subsidiary' (Higson, 2003, p. 12). English law does not define fraud, and it is often not easy to detect, especially in the short term. Generations of accounting students have remembered – if little else – the famous Kingston Cotton Mill case of 1896: '[The auditor] is a watchdog not a bloodhound. If there is anything to excite suspicion, he should probe it to the bottom; but in the absence of anything of that kind he is only bound to be reasonably cautious and careful.'

J.K. Galbraith, in his enjoyable and still relevant book *The Great Crash 1929* (1954, pp. 152–3) defined the 'bezzle' as the stock, at any moment, of undiscovered embezzlement. As the level of the stock market rises, the bezzle increases; but as the stock market falls, it reveals growing amounts of past embezzlement and rapidly shrinks. By definition we cannot know the precise extent of the bezzle. For the same reason, it is hard to tell how much creative accounting (in its bad sense) exists.

An example of creative accounting might seem to be governments appearing to repay their nominal borrowings in full, even though in times of inflation the 'real' amount being repaid is much smaller. Thus governments gain from purchasing power gains on monetary liabilities (see Chapter 4, section 2b). Since in the UK it is governments themselves that are responsible for debasing the currency, however, I believe this is really *fraud*; though the courts have been very reluctant to call it such.

Table 6.2 Situations which may lead to suspicions of fraud

1. Suspension of stock exchange listing
2. Investigation by regulators
3. Qualified audit opinion
4. Doubt about going concern status
5. Cash shortages
6. Change of auditors (especially more than one change)
7. Resignation of directors (not retirement on age grounds)
8. Rapid turnover of senior managers
9. Management pay (not just options) related to share price
10. Directors who never take holidays

Benford's Law, which applies to many kinds of data, can be a useful test of plausibility. Mark Nigrini, an accounting professor, used it to discover accounting frauds. The law suggests that in many kinds of money transactions, the digit '1' appears first in about 37 per cent of cases. But where fraud, such as inventing invoices just under some threshold for managerial approval is involved, the digits '8' and '9' appear first far more frequently than would be expected.

'Fraudulent financial statements are of great concern, not only to the corporate world, but also to the accounting profession... Events such as unreported revenues, manipulation of losses, inflated sales, fraudulent write-offs of uncollectible accounts, unusual related-party transactions, misappropriation of assets, and many other irregularities ...' (Vanasco, 1998)

Table 6.2 sets out a list of situations which may lead to suspicions of fraud.

8. Non-public and non-profit-seeking entities

So far we have been discussing mainly public limited companies whose equity shares are listed on one or more stock exchanges and owned by members of the public. With respect to creative accounting, the incentives and interests of managers of such companies may be very different from those of shareholders; and agency theory has a good deal to say on the subject.

If there are no 'public' shareholders, the role of the senior managers is likely to be more central. In family companies they are more or less permanently in charge, whereas the top managers of plcs are merely hired help. Even if plc directors may own some equity shares, in the UK it is rare for them to account for more than 5 per cent of the company.

Things are different in continental Europe, where several generations may have held a controlling interest; and in the US, where founders often still own a substantial stake. (Sometimes what is relevant is not how large an absolute holding directors own, but what proportion of their personal wealth is invested in the company's shares; though this is often not public knowledge.)

In many smaller family companies, however, the interests of managers and shareholders may be much closer – indeed the top managers may be the main shareholders. There may also sometimes be non-family investors who play little part in management, except perhaps as non-executive directors. There may also be junior or distant family members who have an interest (direct or indirect) in ownership but play no part in management.

As a rule, such family companies pay less attention to the annual reporting cycle – they may often be able to take a longer view. Not being publicly-owned they are probably under much less pressure to report steadily growing earnings per share every year. Certainly they will rarely have to worry about short-term speculators. Pilkington Glass said they could never have gone ahead to develop the very expensive float glass process if they had been a public company at the time.

In addition to profit-seeking companies and partnerships, there are also many non-commercial entities which still need or want to produce regular annual accounts. Some may be large, such as government departments or hospitals, schools or universities, with annual revenues of many millions of pounds; while others may be much smaller, such as charities, clubs, societies and many other bodies making up what is sometimes called the 'voluntary sector'.

While various accounting tricks are open to them too, the incentive for 'creative accounting' is usually much less, since the basis of their managers' pay is perhaps unlikely to be so directly related to 'performance' and there are normally no 'shares' to deal in. Indeed it would be rare for anyone to suggest that the accounts of such bodies contribute significantly to anyone's 'decision-making' (which is claimed to be the basis for modern accounting standards). Though charities might be tempted to understate their assets in the balance sheet, in order to increase the chance of donations.

9. Conclusions

Creative accounting is not illegal, but it stretches the accounting rules to their limits. The outpouring of new accounting standards since 1990

has ended many creative accounting practices which made financial statements harder to interpret. Terry Smith's 1992 book *Accounting For Growth* (pp. 185 *et seq.*) gives a useful list of such practices.

Creative accounting can affect either disclosure or measurement, and either the profit and loss account or the balance sheet (or both). It may, for various reasons, involve either overstating or understating profit or net assets.

One of the most powerful drivers of creative accounting is simply conflicts of interest between managers and shareholders. There is a whole literature on agency theory dealing with these problems, which are not always easy to prevent. Management incentive schemes depending on short-term performance can be especially pernicious.

Some managers pretend to forecast their companies' future earnings per share figure to the nearest penny. This is unhelpful because it can create enormous pressure on managers. They know the market may exact a heavy penalty for even a near miss in failing to meet the target figure.

Different aspects of creative accounting include the following: failing to write down assets properly, understating liabilities, creating secret reserves to boost profits later, overstating sales revenue, undercharging expenses, disguising normal expenses as 'exceptional' (or *vice versa* for income).

It is perhaps worth repeating my own view that most senior business managers responsible for preparing company accounts are genuinely trying to do their best. On this critical question, two Austrian economists have made important points. Hayek (1944, p. 56) distinguished between providing signposts and commanding people which road to take. Just because the financial rewards for a certain course of action may be very large does not oblige anyone to follow it. And Ludwig von Mises (1949, p. 217) wrote: 'It is not the fault of money that there are gangsters, thieves ... corruptible officials and judges. It is not true that honesty does not "pay". It pays for those who prefer fidelity to what they consider to be right to the advantages which they could derive from a different attitude.'

7
Spurious Accuracy

De minimis non curat lex
[The law does not concern itself with trifles]

I define 'spurious' accuracy as a pretence to precision that is either unattainable or useless (or both).

Extreme accuracy need not be spurious. After Donald Bradman was bowled second ball for a duck in his final test match at The Oval in 1948, his career test batting average was 99.94. On the face of it, it might seem over-precise to calculate this to two places of decimals (though it is normal in cricket). But his average fell tantalisingly short of 100 – an unprecedented figure. (He had needed only four runs in his last innings.) In that context, stating his average as 99.94 was entirely justified; and rounding it up to 100 would have missed the essential point.

Too often, however, in accounting (and finance and economics) numbers are published to absurd degrees of detail. Often the amounts cannot possibly be that accurate, and the detail would be completely irrelevant even if they were. The same is true in other walks of life.

1. Accounting

a. The appearance of precision

No doubt there are physical sciences, such as nano-technology or atomic physics, where precision can be fully justified. But this is less likely in a social 'science'. In the context of accounting: 'Many aspects of business can't be quantified at all, e.g. employee morale, customer acceptance and management expertise. Many of those aspects which can be quantified do not permit precise measurement ... Even those aspects which

do yield seemingly precise measures often yield different measures depending on the judgement of the measurer.' (Shank, 1973, p. 87) Indeed 'the final figures in the financial statements may come about as a result of negotiations between management and their auditors'. (Higson, 2003, p. 1)

All that is bad enough. What makes it worse, however, is the *appearance* of precision that often seems to emerge. Far too often in accounting this is entirely spurious. 'Users view the financial statements, because of the use of numbers, as having a degree of exactness and certitude which, in fact, they do not have.' (Liggio, 1974, pp. 27–44) In looking at accounts and accounting numbers, one needs to bear in mind the nature of some of the estimates. Preparers of company accounts cannot guarantee precision to the nearest penny, and nobody should try to interpret their numbers as if they can. Norbert Wiener remarked that economics was a 'one or two digit science' (Morgenstern, 1963, p. 116 fn.). The same sort of attitude makes sense for accounting as well.

Spurious accuracy is, to some extent, in the eye of the beholder. Whenever you see more than *five* 'significant' digits in published accounts, be on your guard. It may make good sense to use one more decimal place than there seems to be a use for in individual items: this may avoid or reduce problems of rounding. But three or four surplus decimal places is just silly.

Why does it happen? People keep accounting records (as a rule) to the nearest penny, so it is tempting to assume (wrongly) that extreme precision in published accounts is *possible*. Sometimes lazy preparers of accounts may simply find it more convenient for themselves not bothering to round the numbers in accounts. Preparers do not always think of the *users*. What do they want accounts for? How much 'accuracy' do they need? How best to communicate meaning to them?

There are several different reasons why spurious accuracy in accounting persists. Partly it may just be habit on the part of preparers, doing the same as last time. Users rarely complain about it, perhaps (wrongly) feeling it is a trivial point. Accounting standard-setters never seem to address the issue, so people may assume they 'authorise' the current degree of detail in company accounts. Finally analysts may actually prefer a pretence of accuracy: they might risk being out of a job if they started talking about margins of error of 10 per cent and more.

I believe spurious accuracy makes communication and understanding much more difficult than necessary. It makes the orders of magnitude (which after all is what numbers are about!) harder to take in, remember and relate to each other. And it leads readers of accounts to assume a far

higher degree of accuracy than is feasible. This financial reporting 'expectations gap' discourages common sense and realistic interpretation.

b. Preparer's exaggeration

Sometimes preparers present numbers with too many 'significant' digits. Whether consciously or not, they imply that the accounts are more accurate than they can possibly be. The context of this book is the overall annual accounts of a whole company (or group of companies). Of course, at lower levels in a large enterprise it may make sense to report smaller sums of money than at the highest level. What is immaterial at group level may well be relevant to a small subsidiary company.

When my step-son spotted a £5 note [= $_{2008}$£10] on a pavement in Bedford, I made him hand it in to a police station rather than allowing him to keep it. If I myself had lost a £5 note I probably wouldn't even have noticed; and if I had spotted one lying around might well have kept it without a qualm. But to a boy aged twelve it *was* quite a lot of money, so I was reluctant to let him keep it too easily. Luckily when we returned to the police station a fortnight later, nobody else had come in to say it was theirs, so my son was able to claim it. (Of course this is not a perfect analogy: I have never regarded my step-son as a 'subsidiary'; nor have we ever 'consolidated' our financial affairs!)

In 1951 R.J. Reynolds Tobacco Company, a large American company, published its accounts to the nearest *cent*! It seems surprising that the folly of doing so never occurred to anyone at the time. Another example may be less foolish, given the size of the entity, but more so, given its nature. The Conference of University Professors of Accounting still publishes annual accounts as if they were accurate to the nearest *penny*. But where nonsense is an option, the European Commission is unrivalled. This organisation, whose accounts have not been signed off by the auditors for 14 years running, showed operating revenue in its 2005 Annual Report as €107,890,098,965.56! Who could possibly care about the *fourteenth* 'significant' digit?

In 1975 General Motors [GM] charged exactly $800,000,000 for income tax in its accounts. Fair enough: there must have been many estimates in compiling the amount. Clearly GM would not have agreed the actual tax assessment until months after finalising the accounts. But the General Motors accounts showed profit *before* tax as $2,173,214,817; so the company reported net income (profit after tax) as $1,373,214,817. That is absurd! *Ten* significant digits for net income, after allowing only a single one for the tax charge! The numbers could not conceivably be

anything like that accurate, given all the estimates needed; indeed they probably couldn't even be 'right' to better than the nearest $100 million. But *even if they were*, there would be no purpose in presenting the accounts in such apparent detail. It would be like reporting someone's age as 24 years 7 months 13 days and 17 hours. Giving too much irrelevant detail just makes it harder for readers to take in the order of magnitude of even the *first* digit.

GKN once translated its UK accounts into various foreign currencies, including the Italian lire, in a worthy attempt to help foreign readers understand the results. Since there were then 1,537 lire to the pound, the Italian figures pretended to a level of 'accuracy' some 1,000 times greater than the sterling amounts! This was probably an example of an innocent producer of accounts *trying* to be helpful – but failing. (One wonders too whether Italian readers would have appreciated all the nuances of UK accounting practice.)

Something similar results from insignificant separate items, especially in balance sheets. For example, Balfour Beatty, whose assets totalled £2,578 million in the 2006 balance sheet, listed no fewer than 27 different net asset categories (not counting totals and sub-totals), of which seven amounted to under £10m in both years – less than ½ of 1 per cent of the total). If all this is required by accounting standards, a bit more common sense on the part of the standard-setters would be helpful. The result is to make the balance sheet much harder to interpret than it needs to be: indeed its apparent complexity may have discouraged many shareholders from even attempting to do more than glance at it.

I have known MBA students produce 'business documents' containing as many as eight places of decimals! Why? Because their computer could produce them automatically; and the students either failed to notice (!) or else gave no thought to the *reader* of their work. Modern data processing equipment can spew out so-called 'data' to half a dozen or more places of decimals, but even a weak student should have enough nous to query whether the numbers could possibly be that accurate, or (more to the point) whether, even if they were, the users of the 'information' gain any extra meaning from the extra digits. Modern computers make projecting future estimates so painless for the forecaster that they can almost eliminate any need for thought at all.

I recently came across a management accounting example: an annual budget for expenditure totalling just over £1 million was split into separate figures for the four quarters in the year for each of about 20 different headings. Sometimes the annual figure would not divide by four, in which case the amount shown for the quarter would end in ¼, ½ or

¾. Needless to say, that made the whole document almost impossible for users to read, without adding anything significant in terms of genuine accuracy. Not only were the annual amounts themselves merely a rough estimate, but so was the pattern of phasing through the year.

Some preparers of accounts seem to agonise over each digit they drop. (Rather like people who are reluctant to throw away any piece of paper 'in case it might come in useful some day'.) Not long ago I was challenged to improve the presentation of some internal management accounts, after (as a user) I had complained about the unnecessary number of digits they contained. But although the entity had a turnover exceeding £100 million a year, I failed to convince those in charge to report only to the nearest hundred thousand pounds. They seemed to see value in reporting detail to the nearest thousand pounds – *five or six* significant digits – even if it actually impeded readers' comprehension. In his book 'How to make an IMPACT', Jon Moon makes an important point: 'People that object [to rounding] aren't the ones reviewing the numbers, they are the ones preparing them.' (Moon, 2008, p. 184)

Finally, let me gently chide one of my heroes, Adam Smith. His 'Wealth of Nations' (1776) contains a long 'Digression on Silver'. In two Tables at the end, he lists annual data on the prices of a quarter of wheat between 1202 and 1764. Each year's 'price' between 1595 and 1764 represents the average of the highest prices on Lady Day and Michaelmas at Windsor Market. He then averages these averages for various periods of between 28 and 84 years. For the 64 years 1701 to 1764 he reports an average price of £2.0.6 19/32 – pursuing the measurement to the *nearest 32nd of a penny*! One wonders how many readers could possibly *care* about this degree of apparent – though utterly spurious – precision! (As it happens, he even gets his sums *wrong* and reports 19/32 of a penny when it should be 9/32 of a penny only!)

c. Calendar problems

All management accountants recognise that months may be of different lengths. Assuming a five-day week, each month averages about 21 working days, after allowing for bank holidays, normally varying between 19 and 23. One can represent this as 21 days +/– 2 days – or 21 days +/– 10 per cent, quite a large variance. Some companies ignore this difference, and produce 'monthly' accounts, with 'months' of different lengths. Others prefer to have some 'months' last four weeks while others last five. (Different countries, of course, are likely to have different bank holidays, both in total and in their timing.)

For quarters the proportionate difference in numbers is much smaller: 63 days +/– 2 days – or 63 days +/– 3 per cent; though some companies prefer to have '13 week' periods of equal length (ignoring bank holidays). Where there are seasonal factors, it is often best to compare with the same quarter each year, rather than with the previous quarter. (That is: compare the June 2008 quarter with June 2007 rather than with March 2008.) Even this can present a problem where Easter makes a business difference: most years it falls in the second quarter, but sometimes, as in 2008, it is in the first. Where there are seasonal influences, one cannot just average balance sheet numbers for the start and finish of a year, to get an 'annual average'; instead monthly or quarterly figures may be needed.

As for years, in terms of working days, a leap year might contain one extra day in about 260 (less than ½ per cent); but many retailers always end their accounting period on the same day of the week, so every fourth year their accounting 'year' lasts 53 weeks – a difference of 2 per cent compared with a normal year of 52 weeks.

It may be difficult for management accounts to compare actual monthly or quarterly results with budget, if the budget amounts cannot be phased reliably between periods. Comparing actual with budget may not be very useful if variances may imply problems either with the actual numbers or with the *budget*. (One partial answer may be to publish each period the 'latest estimates' for the full year.)

'Fiscal and calendar years are often interchanged even though they need not coincide' (Morgenstern, 1963, p. 35). This was true of the nationalised industries, most of which ended their financial year on 31st March. When I 'consolidated' the accounts of all the main nationalised industries (adjusted for inflation) (Myddelton, 1972), I included the accounts of the British Transport Commission (British Railways *et al* after 1962), whose financial year ended on 31st December.

In the UK the tax year ends on 5th April. Why? The government's financial year used to end on 25th March (a quarter day) – rather than 1st January – until 1752 when the old Roman calendar was changed to the Gregorian calendar (nearly 200 years later than in most European countries); and the 3rd September was called the 14th, leading to the famous cry: 'Give us back our eleven days.'

Cranfield University has no undergraduate students; so it would have suited us for our financial year to end with our academic year, on 30th September. But the government insisted on a 31st July year-end, to coincide with the rest of the state system, where undergraduates predominate. Cranfield School of Management organised its short

courses on a calendar year-end basis (to suit our corporate customers). As a result, in the School of Management we worked to *three* different year-ends, which certainly risked confusion – and quite often achieved it.

American and British dates are presented differently. The British system is more logical: day, month, year; while the American is: month, day, year. Thus '9/11' – the infamous date in 2001 when the World Trade Centre was destroyed – refers to September 11th, although an Englishman would normally read it as 9th November. One wonders how many accounting errors that possible confusion has led to. (Some computers do their best to cause trouble in this respect.)

Calendar problems need not be short term. A few years ago there was a dispute about when the new millennium started: was it 1 January 2000 or 1 January 2001? (Whatever the logic, most people took it to be 1 January 2000, when the 'nineteen-hundreds' came to an end.) This suggests that even 'millennial' accounts, covering no less than a thousand years, might have been subject to some uncertainty!

2. Finance

a. Stock market level

In turning now to finance let me start with a familiar statistic – the Dow-Jones Industrial Average stock market index. This is often taken to measure the overall level of listed US equity shares (which represent just over half the value of all listed shares worldwide). The Dow-Jones Index is quoted to seven significant digits: thus at the close on Friday 28 April 2006, it stood at 11,367.14, down 15.37 [= 0.14 per cent] on the previous day's close. (The US media helpfully tend to report changes as *percentages*, with only two or three significant digits.)

The low for the year so far was 10,667.39 on 20th January. Given annual US inflation of over 3 per cent, we can estimate inflation of about 0.8 per cent for the three months to April. 0.8 per cent of 10,667.39 is 85.34, so if one 'corrected' for three months' inflation, we could re-state the 'low' (in April 2006 dollars!) at 10,752.73. But given the roughness of the inflation estimate for (about) three months, anything more than four digits here seems unwarranted. Using seven digits for the inflation-adjusted index implies a statistic considerably more accurate than is feasible.

The Dow-Jones Index is less than adequate compared with its best-known rival, the Standard & Poor's 500 Share Index. The Dow-Jones Index contains 30 shares, and many (not all) of its constituent com-

panies are very large. But it covers only about 20 per cent of the total value of US listed equities; whereas the Standard & Poor's 500 Share Index covers about 80 per cent. Continuing use of the Dow-Jones Index can only be justified on grounds of familiarity; but by now this is a pretty thin argument.

Far more serious, however, is its technical construction: the Dow Jones Index is weighted by the *price* per share (rather than by value). So a 5 per cent change in Boeing (price per share $83, total value $67 billion) would have about 2½ times more impact on the Index than a 5 per cent change in General Electric (price per share $34, total value $360 billion). Of course all the weightings have to change if any of the constituent companies makes a scrip (bonus) issue of shares.

At a recent date, the top six shares (by value) comprised 51 per cent by value and 20 per cent by price, whereas the bottom six shares comprised only 4 per cent by value and 20 per cent by price. So the Dow Jones Index gives equal weighting to the top six and the bottom six shares (out of the 30); whereas on a value basis it ought to give the top six shares more than *twelve times* the weight of the bottom six. With that serious technical deficiency in the construction of the Dow Jones Industrial Average index, it seems rather futile to quote up to seven significant digits.

How did the Standard & Poor's [S&P] 500 Share Index, based on values, do on Friday 28 April 2006? It closed at 1,310.61, up 0.89 [= 0.07 per cent] on the previous day. The percentage change is again small, but notice one rather important point. By chance, on that day, the S&P 500 Share Index went *up*, while the Dow-Jones 30 Share Index went *down*. Never mind the numbers, even the *sign* was different! (A fall of over 10 per cent in Microsoft shares that day affected the Dow-Jones Index far more than the S&P 500.)

b. Earnings per share

The financial press quotes daily share prices, including: highs and lows for the last 52 weeks; closing share price yesterday and change from the previous day's close; dividend yield and price/earnings ratio. But different newspapers publish different price/earnings ratios even though they quote the same closing price. The implication is that they must be using different 'earnings per share' figures.

For example, Table 7.1 shows how the *Financial Times* and *The Times* reported price/earnings ratios for half a dozen of the largest companies quoted on the London Stock Exchange in their issues of Friday 14th December 2007.

Table 7.1 Price/earnings ratios of six large UK-listed companies on 14th December 2007

	FT	Times
British American Tobacco	18.5	20.5
GlaxoSmith Kline	13.8	13.8
Rio Tinto	20.0	19.3
Royal Dutch Shell B	9.6	10.1
Tesco	17.9	19.7
Vodafone	14.7	20.3

It seems that *The Times* used the reported 'basic' earnings per share, and a dollar/pound exchange rate of about $2.04 to translate the Royal Dutch Shell earnings per share which is reported in US dollars. The FT appears to modify the companies' own reported earnings figures. The result is that there is a difference of at least 10 per cent in three of the six cases. In these circumstances, one wonders if it is worth including even one decimal place in the price/earnings ratio, which can only be a very approximate guide. Certainly two decimal places, which one sometimes sees, is over the top. Similarly it seems ridiculous to report earnings per share figures to the nearest 1/100th of a penny – as, for example, British American Tobacco does.

One kind of adjustment to earnings per share figures aims to produce 'normalised' or 'underlying' earnings. As the name implies, this calculation excludes 'unusual' items, such as costs of closing down an operation, but it is not always clear which items to exclude. A further problem is that the person making the adjustment has to guess the tax effect of excluded items.

One of my favourite ratios when I was a teacher was the 'price/window' ratio. This was the result of dividing reported earnings per share, in pence, by the number of windows in the chairman's office! Even the thickest student could see that the ratio was utterly meaningless. The point was to remind everyone that it is always possible to divide one number by another; but whether it actually means anything may be a good deal more doubtful.

Inflation and retained earnings can complicate interpretation of price/earnings [P/E] ratios. In the UK the P/E ratio usually compares the current market price per share with *last year*'s reported earnings per share [EPS], but in the United States it is fairly common to use estimates either of the *current year*'s EPS, or even of *next year*'s EPS. But this

can give quite a misleading picture even apart from being open to 'creative' estimates.

Let us assume a company's real Return on Equity is 10.0 per cent a year, and the Dividend Payout Ratio [dividend/earnings] is 50 per cent. Then in a company whose performance is fairly stable over time, this year's real EPS should be about 5.0 per cent more than last year's; since the *retained* earnings (of 50 per cent of last year's earnings) should itself produce a return (assumed to be at the average rate of 10 per cent per year). By similar reasoning, *next* year's EPS should be 10.3 per cent more than last year's. Add in assumed inflation of 4.0 per cent a year (roughly the current UK rate), and these expected increases in EPS become 9.2 per cent and 19.2 per cent respectively. On that basis, a P/E ratio of 12 based on last year's earnings would be calculated as only about 10 based on an estimate of *next* year's.

c. Cost of capital

Two conclusions are obvious from the earlier discussion of cost of equity capital (in Chapter 5, section 3), as the basis for a suitable discount rate in economic valuations. First, if there is such fierce debate about the level of the equity market risk premium, there's no point getting too fussed about seemingly precise calculations of a company's 'beta', to two places of decimals. Indeed presenting betas with such apparent precision may be positively misleading, since they depend on all sorts of dubious assumptions. Moreover there may still remain the difficult task of adjusting a company's 'average' beta in order to determine an appropriate beta to reflect the riskiness of a specific capital project.

Second, a particular company's cost of equity capital could easily vary even more widely than between 5 per cent and 10 per cent. So valuations using discount rates based thereon must themselves be subject to a huge margin of error. That would be so even in the unlikely event that both the amount and the timing of the future cash flow estimates were not themselves subject to error.

There are at least four points at issue in trying to quantify the cost of equity capital:

- Whether to use very short-term or longer-term government bonds to determine the risk-free rate of interest;
- Whether to use past results as a proxy for future *ex ante* estimates of beta;

- Whether to use an arithmetic or a geometric index;
- Whether to use a one-year holding period or a much longer period.

It seems doubtful that all those who use cost of capital numbers in practice are aware of the inherent margin of error. Like Pooh-Bah, in W.S. Gilbert's 'The Mikado', they may merely be trying to 'add artistic verisimilitude to an otherwise bald and unconvincing narrative'. They may not deliberately be trying to mislead, as by putting water in a vase containing plastic flowers, or cardboard pips in ersatz raspberry jam – merely to confound with what they like to regard as 'science'.

People often compute the corporate cost of capital by 'weighting' the cost of equity capital together with the cost of debt capital. Many textbooks suggest weighting on a market value basis; yet it is common to combine the so-called market capitalisation of equity with the *book value* of debt (as a proxy for debt's market value). That may be a sensible practical compromise, but let's not attach too much precision to the result.

All this reminds us not to imply that the guesses used as a basis for quantifying some aspects of business decisions can be anything more than that. This is really just another aspect of Hayek's criticism of economists, summarised in the title of his Nobel Prize lecture: 'The Pretence of Knowledge'. I once had a young American colleague who taught finance and said he regarded himself as a 'scientist'. I took some pleasure in replying that I was an accountant and regarded myself as an *artist*! But restricting company accountants and auditors to checking compliance with rules, instead of using their own professional experience and judgement, is like requiring real artists, child-like, to paint by numbers.

d. Valuing equity shares

It might seem straightforward to determine the market value (or 'market capitalisation') of equity shares by multiplying the number of shares in a listed company by the marginal price per share at any date. And indeed this is the common practice. It is relevant for many aspects of accounting and finance.

History suggests that when *all* a listed company's shares are really available for trading ('in play'), the ultimate purchaser of a controlling interest frequently has to pay a premium of about 25 per cent. This implies a hefty margin of 'error' compared with the prior quoted marginal 'market price per share'. Maybe, as with valuing water and

diamonds, we need to pay more attention to the difference between a marginal value and a total value.

Sophisticated publications, such as *Fortune* and the *Financial Times*, often pretend to show the market value of large companies' equity, to seven or more significant digits, even though the calculations could not possibly be that accurate, and anyway such apparent precision would be totally irrelevant. (They would change several times every *minute* during market hours, due both to stock market fluctuations and to changes in foreign currency exchange rates!) In fact there is even *negative* communication, as it is much harder to grasp the rough order of magnitude with (say) nine significant digits than it would be with only three.

Valuing listed equities by multiplying the number of shares by the marginal price is rather like small boys who collect postage stamps 'valuing' their collection according to the catalogue prices. They may be able to do the sums, correct to the nearest penny (possibly splitting the often considerable spread between buying and selling prices), but the results may still be meaningless. For their stamps will hardly ever be of the required *quality* which the catalogue prices assume.

Trading can be very thin, even in some listed companies, which adds another dimension to the task. My father once bought some shares in a thinly-traded listed South African gold mining company, East Rand Proprietary Mines [ERPM]. He started buying at 17/6d [87.5p] and kept on buying until his last block of shares cost 45/– [225p]. If he had then 'valued' his entire holding at 45/–, he would have been misleading himself. For when he came to sell (depending on how soon afterwards) he would almost certainly have driven the price down again, roughly to the 17/6d level at which he started buying. (I wonder what the *tax authorities* would have valued his shares at for Inheritance Tax purposes if he had expired just after buying his last block of ERPM shares?)

At least in trying to value listed equity shares there is often a reasonably active market; but valuing *unlisted* shares is more difficult by an order of magnitude, since often there is virtually no market at all. Margins of error here can be very large indeed.

e. Measuring gearing

Gearing (or leverage) refers to the proportion of debt in a company's capital structure. There are several different ways to calculate it.

For example, there are at least three ways to measure debt, defined as negotiated interest-bearing finance.

- long term: long-term borrowing only
- total: long-term and short-term borrowing
- net: total borrowing less cash

Nor is measuring equity free from doubt. For instance, should we use the book value of equity, which is subject to many well-known difficulties? Or is it better (as most textbooks suggest) to use market capitalisation? (We have just seen, in the previous sub-section, how problematic that can be.) Even if estimating the market value of equity were easy, for certain purposes it may still make more sense to use book value. In many companies the latter still tends to comprise mainly tangible assets, which may constitute sounder security for lending than market capitalisation including large amounts for 'goodwill' the most intangible of all assets, which can easily evanesce in times of trouble.

After all that, one can then calculate balance sheet gearing in at least two ways:

- debt/equity
- debt/[debt + equity].

As a result, the so-called debt ratio can vary widely, there being *at least* 12 different possible combinations. That there are many different ways to calculate debt ratio need not cause too much unease. But one must take care only to compare like with like – which is often *not* done, especially when trying to compare different companies. For the *same word*, if not used with due precision, may refer to *different* things.

Another approach to measuring gearing uses the profit and loss account rather than the balance sheet. It calculates interest cover by dividing profit before interest payable (and tax) by interest payable. Again there is more than one way to calculate the numbers: for example, should interest receivable be netted off?

3. Economics

a. Prices

It is not always obvious exactly what 'price' means. Morgenstern gave a 'concrete example of the complexities of price data' from Reavis Cox:

> ... a price of, say, iron ore becomes not merely $4.60 a ton but $4.60 per gross long ton of 2,240 pounds of Messaba Bessemer ore containing exactly 51.5 per cent of iron and 0.045 per cent of phosphorus (with specified premiums for ore with a higher iron content or a lower phosphorus content and with specified discounts for ore with a lower iron content or a higher phosphorus content); samples to be drawn and analyzed on a dry basis by a specified chemist at Cleveland, the cost being divided equally between seller and buyer; 48,000 tons to be delivered at the rate of approximately 8,000 tons per month during April–September, inclusive, on board freight cars of the New York Central Railroad at Cleveland, Ohio; the purchaser to pay all charges involved in moving ore from the rail off the lake steamer to the freight car and other port charges, such as unloading, dockage, storage, reloading, switching and handling; ore to be weighed on railroad weight scales at Cleveland; payment to be made in legal tender or bank checks of the buyer to the Cleveland agent of the mining company on the 15th of each month for all ore received during the preceding month. (Morgenstern, 1963, p. 185)

After that detailed description, it is sobering to realise that there are two rival UK inflation measures, which can give different results. The Consumer Prices Index excludes the prices of volatile items such as seasonal food and some costs of housing. In November 2007, it indicated that consumer prices had risen over the past 12 months by 2.1 per cent; while the Retail Prices Index, which includes mortgage interest, indicated that retail prices had risen over the same period by 4.3 per cent. *This is a very large discrepancy*. Yet politicians and the media quote 'changes in prices' to the nearest 0.1 per cent as if they were undisputed facts.

Elasticity of demand describes how demand changes in relation to a change in another variable such as price or income. Demand is more likely to be price-elastic if there are close substitutes for a product. Since in the long run one can find substitutes for most products, the long-run price-elasticity of demand is often likely to be high. But pretending to quantify it can easily lead to spurious accuracy (and the time-period involved is usually not even mentioned).

As has been pointed out: '... the truth is that the level and shape of the supply curve, and more particularly of the demand curve, are themselves constantly changing *from hour to hour*. If they could really be discovered, and put on a motion-picture film, we might find them

writhing, vibrating and jumping in a way to discourage even the cockiest mathematical economist.' (Hazlitt, 1959, p. 103)

The old-fashioned method of 'chalk and talk' had an advantage in drawing demand and supply curves. One could position the chalk sideways to give very thick lines on the blackboard, instead of a 'point' where demand curve and supply curve intersected. The result was a large indeterminate area, which (I always felt) better represented everyone's true ignorance as to the precise position of the curves.

b. National income

National income statistics attempt to aggregate transactions in the whole national economy; but they omit a number of things: barter transactions, black market transactions, illegal transactions, many internet transactions, non-marketed agricultural goods, notional rent of owner-occupied accommodation, do-it-yourself work done within households, gifts, leisure, and depreciation of consumer durables (such as clothes and furniture). Changes in the importance of any of these items are hard to allow for. Most government-provided goods and services are included at cost not at current value (which may be higher *or lower*).

The authors of an early attempt to estimate national income pointed out: 'Even within the terms of a definition chosen as that most suitable for statistical analysis, there is a considerable region where only broad approximation is possible, and a smaller region where this approximation degenerates into conjecture.' (Bowley and Stamp, 1927, p. 8) The same is probably still true today.

The national income statistics are presented to the nearest £ million, though there is no pretence that all the amounts can possibly be this accurate. 'In most of the published tables no attempt is made to round estimates beyond the nearest £ million. In some instances this shows figures which appear to have more precision than the evidence warrants.' (*UK National Accounts Concepts, Sources and Methods*, 1998, p. 224) Among the reasons for this approach, rounded figures can distort differences over time or between items and it avoids the accumulation of rounding errors.

The scale of the annual revisions is quite large. In 2005, the revisions increased Gross Domestic Product [GDP] at market prices by about ½ per cent. This is partly because it is hard to detect the impact of new start-up businesses until they have made tax returns, perhaps two years later. (Blastland and Dilnot, 2007, pp. 103–4) US national income figures include a guess of their impact from the beginning, but the UK

national figures do not include anything at first in this respect. Hence the initial estimate of UK national income is too low, while the initial US estimate tends to be too high. (Of course, even the revised figures are hardly 'correct': they are just the latest estimates.) In earlier times there were official UK reliability gradings for various items. Overall national income was graded A; exports and imports B; and fixed investment, stockbuilding and capital consumption C (least reliable). This was a valuable explicit acknowledgement that some margin of error was inevitable.

UK National Income statistics have since 1998 been based on the European System of Accounts, which seems to be harder to understand than the former system. As with International Accounting Standards, the aim is to permit comparison with data from other countries; but as with IAS, this is easier said than done. Morgenstern (1963, pp. 242–82) was scathing about the margin of error, noting that 'national income statistics are still being taken at their face value and interpreted as if their accuracy compared favourably with that of the speed of light.'

Blastland and Dilnot (2007, p. 12) suggest a useful approach to apparently large items of national income, such as government spending. First, divide it by 60 million (the UK population), to put the amount on a 'per head' basis. Then divide it by 52 (if it is, as many such numbers are, an *annual* amount), to put it on a 'per week' basis. On that basis, £312 million a year of government spending turns out to be only 10p per person per week.

4. Miscellaneous

Averages can be tricky, since there are at least four different kinds: the arithmetic mean, the geometric mean, the median and the mode. A total divided by the number of instances gives the arithmetic mean – which is often what is meant by 'average'. It used to be said that the 'average' UK family had 2.4 children, which looks odd, since this is literally impossible for any particular family. The nth root of n numbers all multiplied together gives the geometric mean. It is nearly always smaller than the arithmetic mean (which is one reason why the UK Consumer Prices Index, computed as a geometric mean, often seems to give a lower rate of inflation than the Retail Prices Index, which is computed as an arithmetic mean). The median has as many cases above it as below it. Finally the mode is the most common case. Thus most people have two feet (the mode), but a few have only one or

none, so the arithmetic mean is (say) 1.99. Hence most people have more feet than 'average'.

'The Task Ahead', 1968 successor to the 1965 National Plan, predicted the size of the workforce (of about 25 million) to the nearest thousand. This implied only a tiny margin of error of 0.004 per cent. Morgenstern (1963, p. 9) says of unemployment statistics: '... certainly the 100,000's or in some cases perhaps even the millions are in doubt.' For example, how many of those receiving 'disability (incapacity) allowance' are simply unemployed? This intractable problem 'has its roots in the decline of the country's industrial base and coal mining communities, where doctors were tacitly encouraged to classify the out of work as sick rather than push up unemployment'. (*Financial Times*, 7 January 2008) More creative accounting! And how many illegal immigrants are in the numbers? The government has recently suggested there may be up to 400,000 in the country.

The euro (the 'single' European currency) started with 11 countries in January 1999; but there were attempts to show how it 'would have' fluctuated against the US dollar and the pound sterling *prior* to that date. These involved weighted combinations of the ten predecessor currencies (only *ten* because Belgium and Luxembourg had both previously used the same currency, the Belgian franc). Those attempts were totally artificial – since the euro has an important *political* component.

Just after Christmas 2004 there was a terrible tsunami in the Indian Ocean, affecting many countries in the region, large and small. It was clear at once that the death toll would be enormous. Within a day or two the BBC and the newspapers were publishing estimates of deaths in various countries to the *nearest single person*! At that stage it was impossible to guess the number of deaths to closer than the nearest thousand people. Yet the British media almost without exception pretended their estimates could be a *thousand* times more accurate than that! Their simplistic way of reporting 'news' was absurd.

Recently I saw a motorway road sign reporting the absence of an emergency lane for the next 470 yards. That is a silly number, which is very hard to take in. Either of two other distances would have been better: 440 yards – two furlongs – which represents ¼ mile, and is easily understood by English drivers; or 500 yards, a 'round' number, which is certainly all that drivers actually need. (Travelling at 60 miles an hour, the difference of 30 yards would take only about a second to cover!)

After the Iowa caucuses on 4th January 2008, the first tiny sampling of actual voters' preferences for the US Presidential race, *The Times* printed odds against three named Democrat candidates and five named

Republican candidates winning (a) the forthcoming New Hampshire primary, (b) their party's nomination, and (c) the presidency itself – in each case to *one place of decimals*! The New Hampshire odds for each party's candidates added up to 102 per cent, even while omitting one of each party's candidates who actually ran in Iowa. For each of the leading candidates there must have been a margin of error of *at least* five percentage points. Why pretend that a rough guess could possibly be anything like that accurate? The quoted chances of winning were 65.2 per cent for Obama and 35.2 per cent for Clinton (plus 1.4 per cent for John Edwards).

When there was a problem in the UK over the abolition of the '10p' income tax band, *The Economist* newspaper helpfully translated it into a '20c' tax band – thus changing what was in fact a 10 per cent band into a 20 per cent band as it crossed the Atlantic! (An observant reader spotted this spuriosity.)

8
Near Enough

Μηδεν αγαν
Nothing in excess

1. Accounting

Every company has its unique features and accounts can give only a very broad impression of financial position and performance. 'Within quite wide limits it is relatively unimportant to the investor what precise rules or conventions are adopted by a corporation in reporting its earnings if he knows what methods are being followed and is assured that it is followed consistently from year to year.' (1932 AICPA Committee, quoted in May, 1972, p. 76) In a complex world there is bound to be a substantial margin of error in accounts and we should not exaggerate their possible accuracy. 'What generally matters is not whether a number is right or wrong, they are often wrong, but whether numbers are so wrong as to be misleading.' (Blastland and Dilnot, 2007, p. 94)

Accounting standards cannot completely eliminate error or fraud. Yet the existence of 'standards' tends to raise *beliefs* about the precision of company accounts above what is feasible. It may be that the whole process of 'auditing' accounts adds to this impression (Power, 1994). This creates 'a climate of false security' (Clarke *et al*, 1997) – partly because of all the ballyhoo about what accounting standards are trying to do; and partly because providing for enforcement implies (wrongly) that they can in fact do it. The clear but misleading message is: 'You, the investing public, can safely rely on all this expert effort.' A much looser voluntary regime of 'suggestions' rather than 'instructions' would probably do less damage in that respect. (See Myddelton, 2004, chapter 9.)

There is plenty of evidence that most people think they know more than they do, in the sense that they are over-confident about the accuracy of their estimates. (See for example Kahneman *et al*, 2000 and Gilovich *et al*, 2002.) This may lead people wrongly to suppose that more accuracy is *possible* than is in fact the case. The inherent nature of many (not all) accounting numbers means they can often be no more than estimates based on fallible human judgement. We should recognise the fact in accounting, as readily as we do in other areas of everyday life. Morgenstern (1963, p. 12) observed that: 'The professional users of economic and social statistics, strangely enough, often seem to be less sceptical than the public.' Maybe in accounting too, some 'experts' fail to see the wood for the trees.

Lord Salisbury said: 'No lesson seems to be so deeply inculcated by the experience of life as that you never should trust experts. If you believe the doctors, nothing is wholesome; if you believe the theologians, nothing is innocent; if you believe the soldiers, nothing is safe. They all require to have their strong wine diluted by a very large admixture of insipid common sense.' (Roberts, 1999, p. 218) The same applies to accountants.

In his fascinating book about measurement, Warwick Cairns sums up his ten years of research into the imposition of metric weights and measures in place of traditional British measures. 'People didn't have a very high opinion of the change, if truth be told; and over the years ...if anything, they became slightly less happy about it.' He points out that people had meanwhile been happily making big changes in many other aspects of their lives. But 'throughout history, whenever a government has decided that its people might be better served by swapping their own traditional system for a shiny new one, those people have been less than grateful, and less than enthusiastic, and often surprisingly stubborn in their resistance.' (Cairns, 2007, pp. 13–14) I wonder if there is a parallel here with the response of accountants and business people to the 'shiny new' system that accounting standard-setters have been attempting to impose for many years now?

Cairns (2007, pp. 18–19) goes on to spell out the 'great unwritten, unspoken, unacknowledged Principle of Measurement.' This sounds like something accountants ought to be interested in. It boils down to the fact that people in real life tend 'to go in for bodges, cheats, compromises, estimates and rules of thumb'. After some generations only the best and most useful ones have survived, 'while the others fall by the wayside until you find, almost by accident, and almost without planning it, that you've ended up with a system.' This is what Hayek (1973,

vol. I, p. 37) would call a 'spontaneous' order. There is, of course, a big difference between the spontaneous emergence of 'general acceptance' of certain accounting rules in a number of areas and a deliberate attempt to establish what would be, in effect, a global monopoly on the part of standard-setters.

Part of the problem is that the accounting standard-setters have tried to develop a 'conceptual framework', though nobody seems to regard it as very successful. Yet the more it fails, the more its proponents, like religious fanatics, insist on upholding its purity. According to Cushing, an important by-product has been a commitment on the part of many accounting scholars to 'a more scientific approach to their discipline'. He says, 'that today's most active accounting researchers ... would like to be considered as scientists.' (Cushing, 1989, p. 26) But I believe accounting is an art not a science: in aiming to give 'a true and fair view', preparing accounts calls for flair, imagination, judgement, integrity and common sense. George O. May (1972, p. vii) pointed out: 'The rules of accounting, even more than those of law, are the product of experience rather than of logic.'

It was a serious mistake for the (UK) Accounting Standards Board to ignore the profound criticisms of the draft Statement of Principles of Financial Reporting in 1995 from each of the (then) six leading accountancy firms (Myddelton, 2004, pp. 121–5). In general, the accountancy firms disliked the emphasis on prediction and the asset/liability approach; instead they stressed the importance of the accounts giving 'a true and fair view' and of a single profit and loss account (instead of a separate Statement of Realised Gains and Losses too). Some of the firms' general assessments were very negative:

- Deloitte & Touche: '... we do not regard the draft as a sound basis for a final Statement.'
- Ernst & Young: '... fundamental change to this draft is needed.'
- Price Waterhouse: '... our reluctant conclusion is that the Board must start again.'

2. Sports

Many people take a keen interest in sports, and regard the results of key fixtures as being of great importance. In both team games and individual sports there are many areas of uncertainty, where referees or umpires have to make difficult decisions, often with only split seconds in which to do so. Accounting can learn lessons from them. Everyone

involved accepts dubious decisions by referees or umpires, and takes them in their stride; though there may be attempts to reduce the chance of error, by consulting linesmen or 'third' umpires or, in some cases, mechanical equipment.

a. Football

Probably the most popular sport in the world is football (originally known as Association Football, hence 'soccer'). The European Champions' League (every year) and the quadrennial European Cup and World Cup attract huge interest and vast audiences. Yet the results are subject to all sorts of chance and mistake. (I am not talking about *cheating*, such as Maradona's 'Hand of God' goal for Argentina against England, or diving in one's opponents' penalty area.)

The main areas of dispute are: whether a ball going over the goal line results in a corner or a goal kick; whether a ball has gone over the line between the goalposts, resulting in a goal; which side should throw in after a ball goes into touch; whether a player is offside; whether there has been a hand-ball or other foul play (resulting in a free kick to the other side); whether a foul occurred inside the penalty area, in which case it results in a penalty kick; and whether a foul merits a caution (yellow card) or a sending-off (red card). There are also questions about how much time, if any, to add on for injuries and other stoppages during normal time. That leaves many occasions during a game permitting the referee (and the linesmen) discretion, and many opportunities for disagreements and errors.

Almost every week some Premiership manager complains about a 'wrong' decision costing his side valuable points. But however seemingly important the game, everyone accepts the result. A unique exception was an FA Cup tie some years ago between Arsenal and Sheffield United. When someone was injured a Sheffield player kicked the ball into touch. At the restart an Arsenal player threw the ball in, aiming to 'give it back' to the opposing goalkeeper. Unfortunately a new Arsenal player, Kanu, recently arrived from abroad, was unaware of the convention. He latched on to the throw instead and scored a 'goal'. Officially Arsenal 'won' that tie, but Arsene Wenger, the manager, insisted on a replay (which Arsenal won).

b. Cricket

As with accounting, the 'spirit' of cricket is (or, at least, used to be) of critical importance. Thus the phrase, 'It's not cricket' came to be generally used to mean unsporting or unfair or inappropriate behaviour.

We may treasure the thought that 'It's not accounting' might have come to carry a similar meaning!

The main areas of dispute to do with batsmen being out are: leg-before-wicket decisions, catches behind the wicket – whether the batsman hit the ball or not, and sometimes other 'catches' too, and 'run out' decisions. The convention is that if there is uncertainty about a dismissal, the batsman gets the 'benefit of the doubt'. Other sometimes arguable decisions by the (two) umpires concern 'no ball' and 'wide' calls, dubious boundaries and decisions relating to bad light. Everyone who follows cricket accepts these things as simply part of the game.

In 2005 England won back the Ashes in their regular keenly-contested series against Australia. The visitors clearly won the first test match at Lords, and, due to bad weather, the fifth at the Oval was a draw. But the other three matches could hardly have been closer: any of them could easily have gone the other way, if batsmen, bowlers or fieldsmen on either side had performed slightly better or slightly worse. The point here is that the results could also have been different if the *umpires* had not made a number of mistakes. Being fallible, they are bound to do so over five days. In fact a memorable feature of the series was the sporting way the Australians accepted several unlucky decisions.

c. Other sports

England, the World Champions, surprised everyone by reaching the rugby union World Cup final again in 2007. Mark Cueto seemed to have scored a try for England at a crucial point in the match against South Africa. But after an agonisingly long interval, the 'try', which might well have changed the outcome, was disallowed. Part of the would-be scorer's leg was adjudged to have been over the touch line, though it must have been a very close call.

In the Oxford and Cambridge boat race the final result isn't usually close; but umpires' often debatable decisions about steering in the first half of the race can be crucial.

In boxing there is a continuing need for very fine judgements, so that for important contests there are three referees not just one.

In horse racing there are photographs to help decide the winner; but sometimes the margins are tiny. And the stewards have to make difficult judgements about unfair riding and horses obstructing other horses.

In ice-skating there seems to be considerable scope for subjective opinions; hence there are sometimes large differences in the scores awarded by as many as eight judges.

In lawn tennis there are technical devices to help show whether a ball is out of court or not, and line judges too, but many of the umpire's decisions are desperately close.

In Formula 1 motor-racing, split seconds may make all the difference, as may fairly small 'technical' infringements.

3. Weather

It is often useful to have some idea what the weather is going to be like over the next day or two. Unfortunately due to the geographical location of our island it's extremely difficult to be accurate about the 'British weather', which can vary greatly over a relatively small area.

We probably want to have some idea about three aspects of the weather:

- Will the temperature be above, at or below the seasonal average?
- Will there be rain or snow: continuous, occasional or none?
- Will there be wind: high, medium or very little?

Even these modest details could provide 27 different combinations; and one could add more by referring to particular regions or times of day.

Today the weather forecast predicts a lot of rain. The BBC said it might amount to as much as 50 millimetres in some places – and then had to translate that as 'about two inches'. Being in the middle of a long transition to metric measurements seems to make it necessary to transmit measurements in two different ways for at least a couple of generations, which reminds us how important *familiarity* is in such matters.

For many years temperatures in the UK were given both in Fahrenheit and Centigrade; and references to both are still common. Yet most people probably feel more comfortable with one of these measures, and maybe have no clear idea of the meaning of the other. In those circumstances it would be silly to report temperatures to one or more places of decimals.

In fact expert forecasters are unable to *provide* great accuracy and most people don't *need* it. Indeed pretending to give it would probably confuse most people rather than enlighten them. It is revealing that the multi-colour BBC weather map, looking at the week ahead, often seems to comprise only a *single* colour and a laconic description of just a few words to cover the whole of the British Isles for seven days.

It's just as well we don't require great accuracy in forecasting decades ahead either; as only 30 years ago there were many gloomy prognostications about global *cooling*. The current fashion seems to be global warming; but the fact is, our planet's climate is highly variable, even over quite short periods; and there is still a great deal we do not understand about how the atmosphere works.

For example, it turns out there has been no overall 'global warming' in the last ten years. Compared with a 1998 average of 0.52°C above the 1961–90 estimated global average temperature, the numbers from 2001 to 2007 range between 0.40° and 0.48° (Lawson, 2008, p. 7). The climate models on which doomsters place so much reliance did not predict this. According to Christopher Booker, the *drop* in global temperatures since January 2007 has been 0.77 degrees Celsius. 'In other words, in just 16 months we have seen global cooling greater than the 0.7 degrees net warming recorded by the UN's Inter-governmental Panel on Climate Change for the whole of the 20th century.' (*Sunday Telegraph*, 8 June 2008)

4. Political elections

The French referendum vote to join the euro in 1998 was extremely close, in the end being swung by notably large (and perhaps somewhat suspicious) pro-government majorities from the overseas territories.

General elections, too, have rules. George W. Bush won a *very* close US contest in 2000, when the result hinged on Florida, and there were many questions about the accuracy of the count in that state. In the end the Supreme Court had to decide; but to an outsider it really seemed the decision could have gone either way. Albert Gore, the unlucky Democratic candidate, behaved extremely well on 'accepting' the result. (It's true he had no real alternative, but he could have been much less gracious about it.) There were also questions about the 2004 US election.

In the UK the Conservatives would probably need a lead in the 'popular' vote of some 10 per cent in order to win an overall majority in the House of Commons. Whether this skewing of the electoral system is 'fair' or not, everyone recognises that those are the rules of the game. But not everyone plays this game by the rules: in the 2005 general election there was far more postal voting than ever before, and far more fraud too. (In one case that reached the courts, the magistrate said the British electoral system 'would disgrace a banana republic'.) But people accept the result.

In a recent Kenyan presidential election the ruling party overdid the fraud. My guess would be that fraud of up to 10 per cent in such elections is probably usually tolerated in similar elections; but in the Kenyan case, with government ministers being ejected from office in large numbers in a simultaneous general election, it was obvious that the presidential election numbers had been misreported on a vast scale: probably over 20 per cent in some areas.

We cannot trust the results of the recent presidential election in Zimbabwe at the end of March 2008, since the authorities did not publish what they claimed to be the 'results' until early May. (Again the simultaneous parliamentary elections provided something of a check.) Bad numbers may take longer to add up, but that is absurd! Those 'results' eventually showed the incumbent, President Robert Mugabe, losing the vote (we can trust *that* all right!); but crucially they pretended his opponent had not gained more than 50 per cent of the vote – which he almost certainly did – hence that a second 'run-off' election was necessary. If you believe that you'll believe there's no inflation in Zimbabwe. (Latest estimates: 1,000,000s per cent a year!)

There was dispute about the Democratic Party's 2008 presidential primaries, whether the votes in two states, Florida and Michigan, should be partly or wholly counted, after they had been disqualified for holding the primaries too early. In the end it was clear that no decision would help Hillary Clinton enough to overturn Barack Obama's narrow win in the hotly contested race.

5. Transport

Departure times of trains are usually reliable; and in some countries they expect the arrival times to be adhered to as well! Jens Lehmann, the German goalkeeper who has just left Arsenal, remarked that the English were very tolerant. He said the Germans expected their trains to run on time, but the English were different! How true: I don't often travel by train in England, but it is rare for them to arrive on time. As I don't really expect them to, however, their failure to do so doesn't usually cause me too much trouble.

For 'security' reasons one is now expected to arrive at most airports hours in advance. For travelling abroad this often amounts to having to allow more than half a day from door to door. Both departure times and arrival times are *known* to be unreliable, so people allow for that in their planning.

When I used to visit my grandmother in Richmond, it usually took me about 45 minutes by car; but the time could vary quite a lot depending on traffic conditions. But my grandmother, who didn't understand that (she was born before the motor-car was invented), used to get very worried if I was even a single minute 'late'. So I would aim to arrive about 15 minutes early and park just round the corner, so that I could always appear promptly 'on time'. Her expectations were unrealistically precise (and my behaviour helped to keep them so!). Most of us nowadays manage to tolerate even quite long delays due to traffic conditions.

Rather like accounting standards, there are two possible approaches to drivers' speeds on the roads. One is to set quantitative limits and require drivers to observe them at all times. That means people watch out for speed cameras instead of keeping their eyes on the road. In terms of safety – which is presumably the point – this is an 'input' measure. Or you can require people to drive *safely* at all times (an 'output' measure), and let them exercise some discretion about their precise speed (perhaps by having 'guidance' as to maximum speeds, rather than strict 'commands'). Some of the most dangerous moments on motorways occur when traffic which has been travelling faster than the official speed limit – perfectly safely – suddenly sees a police car driving just below the speed limit in an inside lane, causing everyone to slow down in a hurry and risking collisions. Thus the police car's 'law-abiding' behaviour can actually *cause* danger.

6. Miscellaneous

a. Weights and measures

A professional analogy to margins of error in accounting is tolerances in engineering. Measurements may vary within certain practical limits, allowing reasonable leeway for imperfections without compromising performance. Since tighter tolerances are harder and more expensive to achieve, it is often desirable to specify the largest possible tolerances while maintaining proper functionality.

In his book 'About the Size of It', Cairns (2007) discussed various units for weights and measures, such as the foot, the inch and the yard; the pound (weight); etc. and explained why and how similar practical units have evolved and survived in different countries. He also noted the resistance to 'theoretical' units such as the metric system being imposed. Is there a lesson here for accounting standard-setters? After the French Revolution tried to sweep away all familiar measures, apparently even Napoleon resisted talk of 'kilogrammes'.

The metric system continues to cause us problems in Britain, even apart from the European Union trying to make it *illegal* to use familiar measures, such as pounds, in weighing fruit for sale. I can never remember how many kilogrammes I weigh, as I still think in stones; nor have I any idea of my height in metres, as I still use feet. There also seem now to be parallel systems of measuring sizes for clothes and shoes.

b. Cooking

One common analogy compares detailed US accounting standards to 'cookbooks'. But this is highly misleading. Most cookbooks permit plenty of room for individual flair and personal judgement; and even if some recipes pretend to spurious accuracy, real cooks are artists and allow themselves quite a lot of 'poetic' licence.

A good example of tolerance in cooking relates to packaged food. There are often 'sell-by' dates, but most people take them with a pinch of salt (to coin a phrase). There's usually a fair amount of leeway.

c. Medicine

In medicine, the supreme rule is: 'Above all, do no harm'. That is a very *practical* approach, to a 'life-or-death' subject. Often doctors don't know what the 'problem' is and just leave it alone, a '*laissez faire*' approach which some economists find perfectly congenial. ('Placebos' may be employed to satisfy the patient that something is being done.) 'Time heals most things.' Hence the following joke:

Doctor: 'Have you had this trouble before?'
Patient: 'Yes, doctor'.
Doctor: 'Well, you've got it again!'

Perhaps the best current 'medical' example is the advice we seem to get all the time about not drinking too much alcohol. We're 'allowed' a certain number of 'units' every day; though as most of us haven't got much idea how much a 'unit' is, the advice is hard to follow even if we wanted to. Where did the suggested 'maximum' come from? Plucked out of the air!

7. Back to accounting

After all these examples from other walks of life suggesting that rough estimates are often perfectly suitable for everyday purposes, let us return to accounting. Why is it, precisely, that accounts 'need' to be

accurate? Of course this comes back partly to the purpose of company accounts.

As I said at the start of Chapter 3, I believe company accounts have five main purposes:

- to enable shareholders to monitor the performance of managers
- to show how much profit is available to pay out in dividends
- to provide a basis for governments to tax corporate profits
- to underpin contractual arrangements, including management bonuses
- to help lenders and suppliers make decisions about providing finance.

It is hard to see that any one of these five purposes requires 'accuracy' to within closer than plus or minus ten per cent.

In some areas of accounting we can clearly use approximations. To calculate stock turnover, it makes sense to use *cost* of sales if possible. But using sales at selling prices divided by stock at cost can still show trends over time. Or to estimate the average period of outstanding debtors one can divide end-of-year debtors by average monthly sales; though, if there is any seasonal influence, one should strictly use sales during the last months of the year. Also the amount owing by debtors will include Value Added Tax [VAT], whereas the sales figure will exclude VAT.

What about 'decision-usefulness for equity investors' which some people claim is now the main purpose of company accounts? The decision-maker can naively extrapolate past 'trends' from accounts into the future, which is an extremely simplistic approach to forecasting the uncertain future. (Most unit trust advertisements are careful to warn: 'past performance is no guide to the future'.) Or he can make his own forecasts of the future using the accounts *as a starting point,* which hardly requires super precision.

Inflation can distort 'money' accounting (see Chapter 4). But few people advocate using Constant Purchasing Power accounting until inflation over several years averages about 5 per cent a year. Below that level we just tolerate the inaccuracies.

US accounting stems from a similar legal and historical background to UK accounting. Yet they contain very few identical terms in the balance sheet ('statement of financial position'). 'Cash' and 'current assets' are about the only common terms. In the profit and loss account ('income statement') again, many of the terms are different. Yet it really doesn't matter. Everyone manages to muddle through.

9
Conclusions

1. Introduction

By now it will be evident that it is hard to generalise about margins of error, either actual or potential, in different industries. For example, depreciation of tangible fixed assets was subject to very large inflation adjustments in the capital-intensive nationalised industries. Long-term contracts may be relevant in construction, less so elsewhere. Service industries tend to have very low stocks. In food retailing there are no trade debtors to provide for bad debts against. Purchased goodwill is much more important in industries where there have been many mergers and acquisitions, such as drinks and tobacco. In some industries, such as pharmaceuticals, R&D represents a large proportion of sales and profits, in others much smaller. Foreign currency questions do not matter in certain domestic industries. Defined benefit pension schemes, less widespread now than five or ten years ago, affect old companies, with many ex-employees, more than newer ones. Executive stock options are critical in some hi-tech industries.

We must also remember that whatever the formal rules say, accounting practices do still vary in different countries. The avowed intention of standard-setters may be to enable users to compare the accounts of different companies in different industries in different countries; but we should not too readily assume that this can really be achieved. A healthy scepticism is a necessary part of the attitude not just of auditors, but also of ordinary readers of accounts. This is not to impute bad faith to the preparers of accounts, or anyone else, but simply to recognise the messy realities of commercial life.

2. Interim-ness

The 'interim-ness' of accounts of going concerns, published only a few weeks after the year-end, means that estimates, especially of expenses, will sometimes be in error. As a result, accounts may charge the wrong amount in at least *two* periods, not just one. This can affect reported trends in profit. An obvious example is depreciation of tangible fixed assets (which affects *after-tax* profits), where there may be errors in guessing either an asset's useful life or its residual value. 'Swings and roundabouts' may sometimes mean that such errors make little difference either to depreciation expense or to profit; but we cannot always rely on that.

Another difficult area concerns long-term contracts: the errors can be significant, individual contracts can be large and it can be hard to foresee things going wrong. But with a consistent approach, such errors should only rarely make a big impact on profit. The famous example of AEI's profit forecast being 'falsified' when GEC won the 1967 take-over battle arose largely because there were, not unreasonably in the circumstances, two *different* approaches.

Write-downs of stock below 'cost' to net realisable value and provisions for bad debts both represent the accounting virtue – and I believe it *is* a virtue – of prudence. That means recording losses as soon as possible, while deferring recognition of profits until they are virtually certain. One can be *too* prudent as well as not prudent enough; and in poor or volatile business conditions the amounts involved can be both large and hard to estimate.

Provisions call for judgement and are difficult for outsiders to 'audit'. Contingencies can be large and hard to predict, as to both timing and amount. They may sometimes lead to big 'errors' in a particular year's accounts. It is not easy to see how to improve the present rules: full and transparent disclosure, particularly of any change in accounting treatment, seems to be the proper approach, together with stringent consistency.

Sales revenue is a critical area in which we seem to have jogged along well enough in the UK without detailed accounting standards. The key here, again, is to be prudent and consistent. Problems may arise on a takeover or on a change of senior managers who choose to *alter* the previous policy. Companies are supposed to report any material change in accounting policy and quantify its effect, in reporting sales revenue, as in other areas; but this may not always happen.

Companies normally expense spending on (high-risk) pure research, and carry forward spending on (fairly certain) development projects. Rather than requiring companies to expense spending on *applied* research too, there are theoretical arguments for capitalising a portfolio of applied research in order to match the costs better against subsequent revenues. But business people may fear adverse tax effects from doing so, even if they accept the principle (which many don't).

Some of the rules about how to measure deferred tax are rather complex. Compared with the 'flow-through' method, the impact on accounts from using deferred tax is probably now often quite small. It would be even less if accounts *discounted* to 'present value' the so-called deferred tax 'liability'.

3. Basis of measurement

Accounting standard-setters regard 'decision-usefulness for current and potential investors' as being the main purpose of company accounts, in place of the former generally accepted purpose of 'stewardship' (accounting to *existing* owners). No satisfactory reason has been given for this momentous change; nor does much appear to be known about how investors make decisions. But the result has been to begin to move away from 'cost' as the basis of measurement in accounts towards 'fair value'.

The switch away from historical cost towards current value accounting has made a big difference to some accounting measurements. It opens the way to writing up assets *above* cost. Revaluing tangible fixed assets upwards was an anomaly in Historical Money Cost [HMC] accounting; but Current Value [CV] accounting allows the same sort of thing on a much more extensive (and consistent) scale. Moreover it permits companies to report unrealised increases as *profit*, which always used to be thought extremely imprudent.

The balance sheet is the basis of 'fair value' accounting. Logically the new way to calculate profit (or 'gain') involves deducting last year's balance sheet total for Shareholders' Equity from the current year's (after allowing for new capital raised and dividends paid out). Since current values are often only guesses, this can lead to large margins of error. Table 3.1 showed that a hypothetical margin of error of only 2 per cent in shareholders' funds could lead to possible margins of error in annual reported profits of as much as 40 per cent; and *actual* margins of error could be much higher than 2 per cent.

Those who (like me) believe that failing to amortise purchased goodwill leads companies to overstate profit, will call this an 'error'. There can be very large differences in reported profit under the new system of treating goodwill compared with the old. It is not very satisfactory to make occasional provision for 'impairment' relating to the 'value' of ongoing goodwill (rather than to the cost of *purchased* goodwill), since this means, in effect, 'capitalising' internally-generated goodwill (see Figure 3.3). In the past, for good reasons, this was unacceptable.

The former approach to accounting for pensions took each year's profit and loss account as being part of a much longer series of results; and approved 'smoothing' results over time. The new approach tends to regard each year's results, based on current values, as being separate from every other year's; and is willing to tolerate both volatility and the unrealised nature of some reported profits. The margin of error from year to year in the total pensions expense is probably large.

Accounts presently discount long-term liabilities at the actual past interest rates when the borrowing first occurred. Discounting them instead at estimated current long-term interest rates, which seems to be the logic of current value accounting, could make a big difference, both to the amount of the borrowings and to reported profit, if interest rates fluctuate significantly. It could also introduce a significant margin of error, since capitalised amounts are sensitive to quite small changes in the interest rate.

4. The unit of account

Historical cost accounting using money as the unit of account is better referred to as 'Historical Money Cost' [HMC] accounting; since Constant Purchasing Power [CPP] accounting is also a form of 'historical cost' accounting. When the general purchasing power of money is falling sufficiently fast, say when the Retail Prices Index [RPI] doubles within 15 years, 'inflation adjustments' to HMC accounts can make a big difference.

Above all, inflation can have a very significant effect on depreciation of fixed assets. The *cumulative* difference can be surprisingly large even when the average annual rate of inflation is 'low' (or, indeed, *zero*). For instance, regular annual inflation of 'only' 3.0 per cent a year would mean that the accounts understate straight-line CPP depreciation for assets with 15-year lives by 25 per cent.

There were some very large differences between HMC results for Lucas Industries over the 25 years 1969–94 and the CPP results, as summarised

Table 9.1 Differences between HMC and CPP results from Lucas Industries plc, between 1969 and 1994

	Historical Money Cost HMC	Constant Purchasing Power CPP
Return on equity	5.5%	(1.0)%
Profit after tax	£628 m	Losses $_{94}$**£306m**
Profits/dividends	1.3 times	(2.5) times
Depreciation as % of Sales	2.8%	4.9%
Loss on Net Monetary Assets	n/a	$_{94}$**£500m**
CPP profits before tax	n/a	$_{94}$**£608m**
Tax	£457m (42%)	$_{94}$**£914m** (150%)

in Table 9.1. Perhaps three are worth special mention here (others require referring back to the text in Chapter 4, section 3). An HMC positive return on equity over the 25 years of 5.5 per cent became a CPP *loss* of 1.0 per cent. Depreciation increased by about 75 per cent, from 2.8 per cent of sales (HMC) to 4.9 per cent (CPP). Finally, and very revealingly, whereas HMC corporation tax amounted to 42 per cent of HMC profits before tax, on a CPP basis the 'real' tax rate amounted to no less than 150 per cent (*sic*) of CPP profits before tax.

The UK currently publishes two different measures of 'inflation': the Consumer Prices Index (the government's official measure), which is now running at about 4¾ per cent a year; and the Retail Prices Index, which I regard as a better indicator, which is running at about 5¼ per cent a year. The differences between them are briefly discussed in Chapter 4. The 15-year average annual [RPI] inflation rate has just started to increase again, from a level of 2.8 per cent a year.

Losses (and gains) of purchasing power on monetary assets (and liabilities) are currently less of a problem, for several reasons:

- Measuring the approximate loss or gain is straightforward
- Whatever the gross amounts, *net* monetary assets are often fairly small
- Inflation rates in most countries are currently not very high by post-war standards.

The impact of inflation on the trend in profits over time seems obvious, but is easy to overlook. It means that this year's profits (after year by year inflation adjustments) need to be more than 15 per cent higher than five years ago, just to stay the same in CPP terms.

Foreign currencies can cause problems; though some companies helpfully distinguish between changes in profits due to operating results and changes due solely to currency exchange rate changes.

5. Accounting profit versus economic income

In the past 'accounting income' matched expenses against realised revenue, to show a conservative measure of profit, with the balance sheet assets as 'residual'. In contrast, 'economic income' was the result of deducting an earlier 'valuation' from a later one. This was both less conservative and much more volatile. The new emphasis on 'current values' in accounting brings the approach to measuring accounting income potentially somewhat closer to that for economic income – though still leaving many significant differences.

In measuring economic income, one needs to estimate the amount and timing of future cash flows for many years ahead as well as a suitable discount rate. The former is not at all easy in dynamic markets, as anyone who has tried it knows. The latter requires a guess about how large a risk premium to use, an area where there are very wide differences of opinion as to the appropriate risk premium even for the 'market as a whole', let alone for any particular company. Combining two highly uncertain amounts can obviously lead to very large margins of error.

Charging notional interest on equity capital is not currently part of accounting practice. There is clearly a big problem in deciding what rate of notional interest to charge (the 'opportunity cost of equity capital'); and there may also be problems in measuring the amount of shareholders' equity to base it on. But if one regards interest on equity capital as a proper 'expense' before measuring true profit (or loss), this item makes a very big difference – often exceeding 100 per cent of reported HMC profits.

6. Creative accounting

Modern pressures on top company managers may tempt some of them towards 'creative' accounting which involves stretching the rules without actually breaking them. This can affect both disclosure and measurement, and both the profit and loss account and the balance sheet.

Given the nature of accounting estimates, there is bound to be plenty of scope for 'creative accounting'. But over the past 15 years and more, the standard-setters have significantly reduced its extent. There

have been improvements in respect of all 12 of the items in Terry Smith's 'blob guide', because modern accounting standards have either outlawed the practices, or required fuller disclosure and transparency.

'Performance-related' compensation for top managers has naturally encouraged some of them to exaggerate performance, especially in the short term.

A particularly damaging practice is attempting to forecast companies' quarterly earnings to the nearest single penny. This implies an unrealistically tiny margin of error, and leads to an 'expectations gap' in corporate accounting.

Managers and shareholders rather approve of 'income-smoothing' (within reason), as a means of reducing perceived risk; though as a rule standard-setters (and some others) disapprove. One possible advantage of this practice (which is very difficult to eliminate altogether) may be to allow managers to indicate their view of 'underlying' medium-term trends. Another aspect may be to average, say, the last three or five years' earnings per share in calculating price/earnings ratios.

In contrast to creative accounting, which aims to keep within the rules (just), *fraud* does break the rules. As there is no such offence as 'fraud' in English law, prosecutions tend to be brought under the Theft Act. Again we must be realistic. It will never be possible to completely eliminate fraud, and there is no point expecting auditors or regulation to do so. The fact is that the vast majority of company directors are honest; and on balance it is best to assume that people are honest and competent until and unless there is reason to suppose otherwise. As Dr. Johnson said: 'It is better to suffer wrong than do it, and happier to be sometimes cheated than not to trust.'

7. Spurious accuracy

Too many preparers of accounts pretend that more accuracy is possible in accounting than is really the case. This risks misleading readers of accounts about the margins of error. It also makes the orders of magnitude of the numbers much harder to take in, remember and relate to each other. A good deal more common sense would help.

This is true of finance and economics, as well as accounting. In finance we get earnings per share figures (sometimes only estimates for the future) to the nearest fraction of a penny; and purported market 'capitalisations' of companies' equity to absurd degrees of apparent precision. In economics two different measures of inflation are used for different purposes, each being quoted as if their accuracy were beyond question.

8. Near enough

The fact is, we don't need accounts to be precisely 'accurate'. Which is just as well, since in a complex world the 'results' of large going concerns can never be more than very rough estimates. It would be better for everyone if this fact were openly recognised in accounting, as it seems to be much more readily in many other walks of life.

In sporting events, in weather forecasting, in political elections, in transport matters, in weights and measures, we don't *expect* perfect 'accuracy', so we manage to get by quite well without it.

9. Mis-reporting profit

There are many reasons why company accounts can never be precisely 'correct'. Balance sheets are not *trying* to report the 'value' or 'worth' of companies; but there are three specific reasons why most profit and loss accounts (income statements) are likely to *overstate* real company profits by a considerable amount.

1. Historical Money Cost (HMC) accounting understates depreciation expense, compared with the 'correct' Constant Purchasing Power (CPP) amount. This results from cumulative inflation over many years, even at what may seem a 'low' annual rate. An average annual inflation rate of 3 per cent leads HMC accounts to understate depreciation expense on an asset lasting 15 years by 25 per cent compared with inflation-adjusted accounts.

2. Failing to depreciate the purchase cost of goodwill over a normal maximum of 20 years means that many company accounts understate expense and overstate profit. Group profits include the profits of acquired companies without charging against them an important part of the cost. Goodwill fades away quite quickly if not continually 'topped up'. Yet failing to depreciate purchased goodwill amounts to capitalising 'internally-generated' goodwill; which is not usually regarded as desirable. (If it were desirable, there would be no need to wait for an acquisition before following this practice.)

3. The hypothetical nature of a notional charge for interest on equity capital in accounts would make it difficult to calculate. Still, omitting such a charge leads accounts to overstate 'accounting' profit compared with 'economic' profit. Since lay readers may confuse the two, people tend to believe that the level of economic profits is *far* higher than it really is.

There are also a number of areas where large margins of error in reporting profit – in *either* direction – can easily occur.

1. Deducting one current value balance sheet from another in order to determine profit for a year can give rise to large errors in reported profit. A 2 per cent margin of error in shareholders' funds could lead to errors in reported annual profit of up to 40 per cent.

2. Providing for defined benefit pensions involve fallible estimates for many years ahead, depending on several tricky assumptions.

3. Other possible sources of large errors in particular circumstances include: depreciation of tangible fixed assets, long-term contracts and provisions for contingencies.

10. Preventing avoidable error

Real life is messy, so there is always the possibility of error. Sometimes there are ways of partially overcoming the problem. For example, in the war Churchill was quite explicit about ensuring that his orders were in writing: 'Let it be very clearly understood that all directions from me are made in writing, or should be immediately afterwards confirmed in writing, and that I do not accept any responsibility for matters relating to national defence on which I am alleged to have given decisions, unless they are recorded in writing.' (Churchill, 1949, p. 17) As a writer on 'supreme command' pointed out, this made a 'remarkable contrast to the work habits of Roosevelt, Hitler and Stalin, all of whom relied chiefly on the spoken word, with all its increased possibilities for ambiguity and misinterpretation.' (Cohen, 2003, p. 121)

Errors in accounting can never be completely prevented, and we should not pretend otherwise. Even so, there are ways for preparers to minimise their extent and impact:

- Always try to give 'a true and fair view' in company accounts. This may be subjective, but it requires experience, judgement and integrity.
- Be consistent over time and transparent about any significant changes in method.
- Take care using 'fair values' to measure unrealised profits or losses if there is no real 'market' in which independent parties trade the assets or liabilities in sufficient volume.
- Do not publicly pretend to forecast future earnings per share figures: it will only create unnecessary pressures towards 'creative accounting'.

- Where the Retail Prices Index has doubled or more over the previous 15 years, use Constant Purchasing Power accounting to allow for inflation.
- Take care and use common sense to avoid spurious accuracy.

Large modern businesses are very complex and it is extremely ambitious to pretend to present a financial picture of their performance and position in only two or three summary statements even when they are accompanied by many pages of notes (sometimes literally *hundreds* of pages). No glib headline can possibly represent an accurate summary of their many-faceted aspects, any more than a glance can take in all the attributes of a complex picture. Here is some practical advice for readers of accounts, in addition to *caveat lector*:

- Be prepared to spend time and effort reading company accounts carefully, including all the notes.
- Be alert to signs of possible trouble, such as: late accounts; directors resigning; a change of auditors.
- Consider using three-year averages for some ratios (such as earnings per share), if reported profits are volatile.
- Look at five-year or ten-year trends, as well as the latest year's results.
- Don't expect too much.

Bibliography

Where two dates are shown, they represent (1) the date of original publication and (2) the date of the particular edition used. Thus: Keynes, *General Theory*, 1936/1973.

Accounting Standards Board (ASB): 'The True and Fair Requirement', Appendix to Foreword to Accounting Standards, London, 1993.

Accounting Standards Board: draft 'Statement of Principles for Financial Reporting', London, 1995.

Accounting Standards Committee (ASC): 'Statement on SSAP 16', *Accountancy*, June 1983, pp. 116–18.

Accounting Standards Steering Committee: Statement of Standard Accounting Practice 7, 'Accounting for Changes in the Purchasing Power of Money', 1973.

Robert N. Anthony: *Accounting for the Cost of Interest*, D.C. Heath, 1975.

Australian Accounting Standards Board 1031, July 2004.

Richard Barker: *Institutional Investors, Accounting Information and the ASB*, Institute of Chartered Accountants of Scotland, 2001.

Michael Blastland and Andrew Dilnot: *The Tiger That Isn't*, Profile Books, 2007.

K.E. Boulding: 'Economics and accounting: the uncongenial twins', in W.T. Baxter and Sidney Davidson (eds): *Studies in Accounting Theory*, Sweet and Maxwell, 2nd ed., 1962.

Arthur L. Bowley and Sir Josiah Stamp: *The National Income 1924*, Clarendon Press, Oxford, 1927).

Costantino Bresciani-Turroni: *The Economics of Inflation*, George Allen & Unwin, 1931/1953.

Michael Bromwich: *Financial Reporting, Information and Capital Markets*, Pitman, 1992.

Gilbert Byrne: 'To What Extent Can the Practice of Accounting be Reduced to Rules and Standards?', *Journal of Accountancy*, November 1937.

Warwick Cairns: *About the Size of It: The Common Sense Approach to Measuring Things*, Macmillan, 2007.

Winston Churchill: *Their Finest Hour*, Cassell, 1949, Volume II of the six-volume 'History of the Second World War'.

F.L. Clarke, G.W. Dean and K.G. Oliver: *Corporate Collapse: Regulatory, Accounting and Ethical Failure*, Cambridge University Press, 1997.

Eliot A. Cohen: *Supreme Command: Soldiers, Statesman and Leadership in Wartime*, Simon & Schuster, UK, 2003.

Reavis Cox: 'Non-price Competition and the Measurement of Prices', *The Journal of Marketing*, Vol. x (April 1946), p. 376.

Barry E. Cushing: 'A Kuhnian Interpretation of the Historical Evolution of Accounting', *The Accounting Historians Journal*, Vol. 16. No. 2, December 1989, p. 26.

Phyllis Deane and W.A. Cole: *British Economic Growth 1688–1959*, Cambridge University Press, 1967.

Sir Ron Dearing (chairman of the Review Committee): *The Making of Accounting Standards*, The Institute of Chartered Accountants in England & Wales, 1988.
Anastasia de Waal: *Inspection, Inspection, Inspection!*, Civitas, 2006.
Elroy Dimson, Paul Marsh and Mike Staunton: *Triumph of the Optimists*, Princeton University Press, 2002.
David F. Drake and Nicholas Dopuch: 'On the case for dichotomising income', *Journal of Accounting Research*, Vol. 3, Autumn 1965.
Edgar O. Edwards and Philip W. Bell: *The Theory and Measurement of Business Income*, California 1961.
Kurt Eichenwald: *Conspiracy of Fools*, Broadway Books, New York, 2005.
Ernst & Young: *International GAAP 2005*, LexisNexis, London, 2004.
A.E. Feaveryear: *The Pound Sterling*, Oxford University Press, 1931.
Financial Times (FT)/ICAEW Conference: 'Inflation Accounting – The Implications of the Sandilands Report', 5–6 November 1975.
Irving Fisher: *The Nature of Capital and Income*, Augustus Kelley Books, 1906/1965.
John Flower with Gabi Ebbers: *Global Financial Reporting*, Palgrave, 2002.
Milton Friedman: 'The Methodology of Positive Economics' in *Essays in Positive Economics*, University of Chicago Press, 1953.
J.K. Galbraith: *The Great Crash 1929*, Penguin, 1954.
Thomas Gilovich, Dale Griffin and Daniel Kahnemann (eds) *Heuristics and Biases*, Cambridge University Press, 2002.
Pelham Gore: *The FASB Conceptual Framework Project 1973–1985: an analysis*, Manchester University Press, 1992.
Paul Grady: *Inventory of Generally Accepted Accounting Principles for Business Enterprises*, American Institute of Certified Public Accountants, 1965.
Ian Griffiths: *Creative Accounting*, Firethorn Press, 1986.
Tony Grundy and Keith Ward (eds): *Strategic Business Finance*, Kogan Page, 1996.
L.P. Hartley: *The Go-Between*, Hamish Hamilton, 1953.
Sir Patrick Hastings: 'The Case of the Royal Mail'; in W.T. Baxter and Sidney Davidson (eds): *Studies in Accounting Theory*, Sweet & Maxwell, 2nd ed., 1962.
F.A. Hayek: *The Road to Serfdom*, Routledge & Kegan Paul, London, 1944.
F.A. Hayek: *Law, Legislation and Liberty*, Routledge & Kegan Paul, London, 1973.
F.A. Hayek: *Denationalisation of Money*, Institute of Economic Affairs, 1976.
F.A. Hayek: 'The campaign against Keynesian inflation', in *New Studies in Philosophy, Politics, Economics and the History of Ideas*, Routledge & Kegan Paul, 1978.
Henry Hazlitt: *The Failure of the 'New Economics': an analysis of the Keynesian fallacies*, D. Van Nostrand, 1959.
Dieter Helm: *Energy, the State and the Market*, Oxford University Press, 2004.
Eldon S. Hendriksen: *Accounting Theory*, Irwin, 3rd ed., 1977.
J.R. Hicks: *Value and Capital*, Oxford University Press, 1939.
Andrew Higson: *Corporate Financial Reporting*, Sage Publications, 2003.
Geoffrey Howe: *Conflict of Loyalty*, Politico's, 1994/2008.
Yuji Ijiri: *Theory of accounting measurement*, American Accounting Association, 1975.
Michael Jameson: *A Practical Guide to Creative Accounting*, Kogan Page, 1988.
Nicholas Kaldor: *An Expenditure Tax*, Unwin University Books, 1955.
Daniel Kahneman and Amos Tversky (eds): *Choices, Values and Frames*, Cambridge University Press, 2000.
Terence Kealey: *Sex, Science & Profits*, BCA, with William Heinemann, 2008.

J.M. Keynes: *The Economic Consequences of the Peace*, Macmillan, 1919/1971 [Collected Works II].
J.M. Keynes: *A Tract on Monetary Reform*, Macmillan, 1923/1971 [Collected Works IV].
J.M. Keynes: *A Treatise on Money: The Applied Theory*, Macmillan, 1930/1971 [Collected Works VI].
J.M. Keynes: *The General Theory of Employment, Interest and Money*, Macmillan, 1936/1973 [Collected Works VII].
Frank H. Knight: *Risk, Uncertainty and Profit*, Harper Torchbooks, 1921/1965.
Nigel Lawson: *An Appeal to Reason: a Cool Look at Global Warming*, Duckworth Overlook, 2008.
C.D. Liggio: 'The Expectations Gap: the Accountant's Waterloo', *Journal of Contemporary Business*, 3(3), 1974.
A.C. Littleton: 'Value and Price in Accounting', *Accounting Review*, 1929.
Gerald M. Loeb: *The Battle for Investment Survival*, Simon and Schuster, 1965.
Richard Macve: *A Conceptual Framework for Financial Accounting and Reporting: Vision, Tool or Threat?*, Garland Publishing, 1997.
Doreen McBarnet and Christopher Whelan: *Creative Accounting and the Cross-Eyed Javelin Thrower*, John Wiley, 1999.
Alfred Marshall: *Principles of Economics*, Macmillan, 8th ed. 1920/1964.
George O. May: *Financial Accounting: A Distillation of Experience*, Macmillan, 1943, reprinted by Scholars Book Co. Houston, 1972.
Bethany McLean and Peter Elkind: *The Smartest Guys in the Room*, Penguin Books, 2003.
Carl Menger: *Principles of Economics*, New York University Press, 1870/1981.
Ludwig von Mises: *Human Action*, William Hodge, 1949.
Jon Moon: *How to make an IMPACT*, FT/Prentice Hall, 2008.
Maurice Moonitz: *Changing Prices and Financial Reporting*, ICRA Occasional Paper No. 3, Lancaster, 1973.
Oskar Morgenstern: *On the Accuracy of Economic Observations*, Princeton, 2nd ed., 1963.
A.M.C. Morison: 'The Role of the Reporting Accountant Today' in W.T. Baxter and Sidney Davidson (eds): *Studies in Accounting Theory*, Sweet & Maxwell, London, 3rd ed., 1977.
Michael J. Mumford: 'Users, characteristics and standards' in M.J. Mumford and K/.V., Peasnell (eds): *Philosophical Perspectives on Accounting*, Routledge, 1993.
D.R. Myddelton: 'Consolidated Nationalised Industries Accounts 1948–1970: Published Figures Adjusted for Currency Debasement', *Accounting and Business Research*, Spring 1972.
D.R. Myddelton: *On A Cloth Untrue: Inflation Accounting, the Way Forward*, Woodhead-Faulkner, 1984.
D.R. Myddelton: *The Power To Destroy: a study of the British tax system*, Society for Individual Freedom, London, 1969/2nd ed. 1994.
D.R. Myddelton: '25 years of Currency Debasement and the Accounts of Lucas Industries', in Tony Grundy and Keith Ward (eds): *Strategic Business Finance*, Kogan Page, 1996, pp. 271–88.
D.R. Myddelton: *Unshackling Accountants*, Institute of Economic Affairs, 2004.
D.R. Myddelton: *They Meant Well: government project disasters*, Institute of Economic Affairs, 2007.
Kamal Naser: *Creative Financial Accounting: Its Nature and Use*, Prentice Hall, 1993.

Michael Page: 'The ASB's Proposed Objective of Financial Statements: Marching in Step Backwards? A Review Essay', *British Accounting Review*, 24(1), March 1992.
Ron Paterson, 'History is not bunk', *Accountancy*, August 2001.
Michael Power: *The Audit Explosion*, Demos, 1994.
Neil Record: *Sir Humphrey's Legacy: Facing Up to the Cost of Public Sector Pensions*, Institute of Economic Affairs, 2006.
Walter Reid and D.R. Myddelton: *The Meaning of Company Accounts*, Gower Press, 8th ed., 2005.
Andrew Roberts: *Salisbury: Victorian Titan*, Weidenfeld & Nicolson, 1999.
Colin Robinson: *The Power of the State*, Adam Smith Institute, 1991.
Sandilands: *Report of the Inflation Accounting Committee*, HMSO Cmnd 6225, September 1975.
Andrew Schotter (ed.): *Selected Economic Writings of Oskar Morgenstern*, New York University Press, 1976.
J.A. Schumpeter: *Capitalism, Socialism and Democracy*, Unwin University Books, 1943/5th ed., 1954.
Securities and Exchange Commission (SEC), Accounting Series Release No. 150, 1973.
G.L.S. Shackle: *Decision, Order and Time*, Cambridge, 2nd ed. 1969.
G.L.S. Shackle: *Epistemics and Economics: A Critique of Economic Doctrines*, Cambridge, 1972.
John Shank: 'The Pursuit of Accounting Standards – Whither and Whence', *Journal of Contemporary Business*, Spring 1973.
Adam Smith: 'The Wealth of Nations', 1776, Everyman edition, J.M. Dent, London, 1970, p. 239.
Terry Smith: *Accounting For Growth: stripping the camouflage from company accounts*, Century Business, 1st ed. 1992.
David Solomons: 'Economic and Accounting Concepts of Income' in R.H. Parker and G.C. Harcourt (eds): *Readings in the Concept and Measurement of Income*, Cambridge University Press, 1969.
David Solomons: 'The Political Consequences of Accounting and Accounting Standard Setting', *Accounting and Business Research*, Spring 1983.
Nicholas Stern: *The Economics of Climate Change*, Cambridge University Press, 2006.
Study Group on Business Income, Round Table Discussion of Monographs, in *Five Monographs on Business Income*, Scholars Book Co., 1973.
Richard Teather: *The Benefits of Tax Competition*, Institute of Economic Affairs, 2005.
Jack L. Treynor: 'The Trouble With Earnings', *Financial Analysts Journal*, Vol. 28, No. 5, Sept/Oct. 1972.
UK National Accounts Concepts, Sources and Methods, London, The Stationery Office, 1998.
R.R. Vanasco: 'Fraud Auditing', *Managerial Auditing Journal*, 13(1), 1998.
Richard F. Vancil: 'Inflation Accounting: the great controversy', *Harvard Business Review*, March/April 1976.
Brian P. West: *Professionalism and Accounting Rules*, Routledge, 2003.
Richard Whately: *Introductory Essays on Political Economy*, Dublin, 1832.
J.B. Williams: *The Theory of Investment Value*, Harvard University Press, 1938.

Glossary

Amortisation: depreciation of intangible fixed assets
Beta: coefficient relating the sensitivity of a security's return to that of the whole market
Capitalise: record expenditure as an asset, not write it off as an expense
Constant Purchasing Power [CPP] accounting: method of inflation accounting that adjusts historical money costs of various dates by means of the Retail Prices Index
Current Cost Accounting [CCA]: system of current value accounting that uses money as the unit of account, but shows assets and expenses at replacement cost (normally)
Current ratio: measure of liquidity: current assets divided by current liabilities
Declining balance depreciation: depreciation method which charges a constant percentage of the declining net book value of a fixed asset each year
Deferred tax: part of tax expenses charged in accounts, not payable for some time owing to timing differences between reported and taxable profits
Flow-through method: charging to expense only tax actually payable, not including anything for deferred tax
Goodwill: excess of purchase price paid to acquire another company over the fair value of the net separable assets acquired
Impairment review: check to see if fixed asset's current value is less than book value
Last In First Out [LIFO]: method of valuing stock which assumes that the goods most recently purchased are sold first
Net Book Value [NBV]: Cost (or valuation) of asset, less amounts written off
Net Realisable Value [NRV]: estimated net proceeds of selling stock
Residual value: net realisable value of a fixed asset at the end of its economic life
Working Capital: Current assets minus current liabilities

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