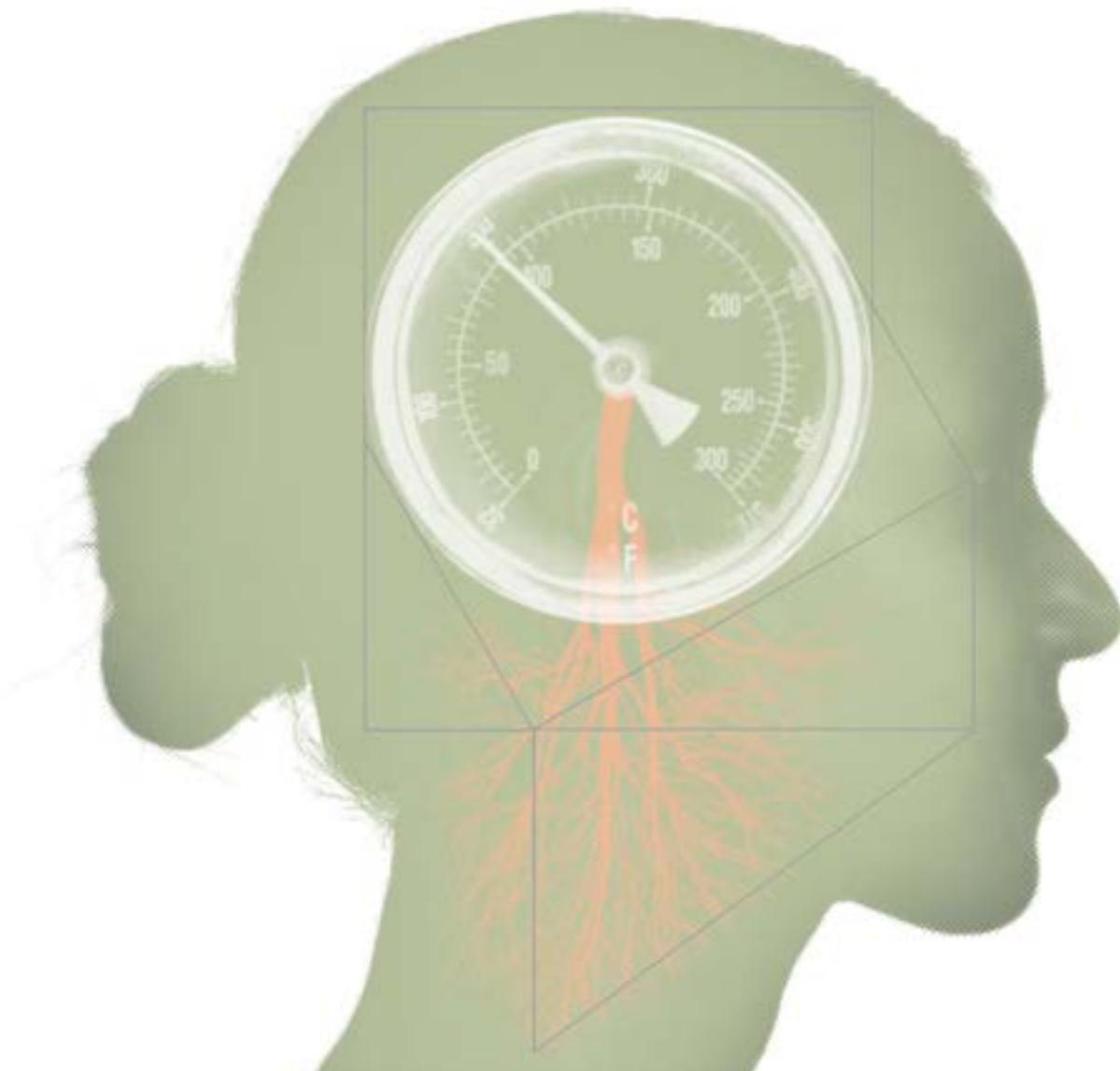


# *Measurement in financial reporting*



# *ICAEW Information for Better Markets initiative*

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This report forms part of ICAEW's *Information for Better Markets initiative*. ICAEW believes that the information available to markets could be significantly improved. To make real progress in this direction, ICAEW is exploring key underlying issues in business reporting by preparing a series of reports, hosting related debates involving interested parties, commissioning follow-up research, and making properly grounded and practical proposals.

This report, *Measurement in financial reporting*, is the sixth in the series; details of earlier reports are given on the inside back cover. If you are interested in following the progress of the campaign or in details of future reports and consultations, please visit ICAEW's website at [www.icaew.co.uk/bettermarkets](http://www.icaew.co.uk/bettermarkets). Anybody wishing to contribute to ICAEW's work is particularly welcome. Please register via the website or email [bettermarkets@icaew.co.uk](mailto:bettermarkets@icaew.co.uk)

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## *Executive summary*

Directly or indirectly, financial reporting measurements – of performance and financial position – affect almost everyone, so any changes in the basis of measurement could be far-reaching in their effects. Growing controversy now surrounds the question of measurement in financial reporting – mainly because of a perceived movement away from the traditional basis of measurement (historical cost) towards a new basis (fair value). Given the importance of the subject, it has not attracted the interest it deserves. This report is intended to improve understanding of the issues and to promote and shape debate.

Financial reporting attempts to measure inherently abstract and debatable concepts such as income and net assets, and it has particular features that make it to some extent inevitably subjective and even arbitrary. It also tries to portray a reality that is constantly changing, partly in response to changes in measurement itself. Financial reporting measurement is therefore a matter of evolving conventions, not something to which there are immutably right and wrong answers. Yet the dominant style of thinking about measurement requirements hitherto has been a deductive one. It tends to assume that there is a theoretically correct answer, and then considers how this can be implemented in practice. The approach recommended here is radically different.

This report argues that the purposes of financial reporting depend on its institutional context and that this context also affects the costs and benefits of different measurement bases. It proposes that decisions on the regulation of financial reporting measurement should be regarded as matters of public policy, should be subject to the overriding tests of cost-effectiveness and fitness for purpose, and should be subject to the same principles of good regulatory practice as other forms of regulation.

It is proposed that any regulatory initiative should involve the following elements:

- consultation;
- making the case for change;
- options development;
- evaluation of options;
- planning implementation;
- mitigating remaining problems;
- implementation; and
- evaluation of results.

‘Making the case for change’ puts the onus on showing that there is a problem that needs to be solved. In the context of financial reporting measurement this may be the case where:

- people are confronted with a measurement problem and do not know how to deal with it;
- worthwhile information that could be provided is not being provided;
- information that is being provided is not worthwhile or even has negative effects – for example, because it is misleading.

It should not be assumed that every case of inconsistency in measurement is a problem that needs to be remedied. This report puts forward the following working hypotheses: that it may be appropriate in making decisions on measurement requirements:

- to adopt a mixed approach to measurement for different items in accounts; and
- to distinguish between different types of entity in accordance with their industry, ownership and governance structure, and size.

'Evaluation of options' should include the option to do nothing. Once the costs of potential changes (including the costs of making the change) have been taken into account and their likely benefits considered, it may become clear that the most sensible policy is to leave things as they are.

This report considers five principal measurement bases:

- historical cost;
- value to the business (also known as deprival value or current cost);
- fair value;
- realisable value; and
- value in use.

Of these, the last four are all forms of current value measurement. For each basis, this report discusses how it works and the reliability and relevance of the resulting measurements. While each basis has its strengths and uses, it is also true that for each there are legitimate doubts both as to its relevance for some purposes and its reliability in some circumstances.

This report recommends that standard-setters' approach to measurement questions should be significantly more evidence-based than has typically been the case hitherto.

To support an evidence-based approach, it suggests topics for research on measurement issues, including:

- the different users of measurement information and how they use it;
- what measurement information users regard as relevant and what they regard as reliable;
- owners' use of measurement information in assessing managers' stewardship of a business;
- the comparative usefulness of different measurement bases in helping to predict future cash flows;
- the costs of using and preparing information on different bases, including the costs of change;
- how different measurement methods affect financial stability and the wider economy; and
- the lessons of experience from earlier experiments with current value information.

## *Invitation to comment*

ICAEW welcomes comments on the analysis and conclusions set out in this report and on the suggested topics for research in Chapter 6. Comments may be sent to [bettermarkets@icaew.com](mailto:bettermarkets@icaew.com)

ICAEW would also welcome dialogue with organisations that have an interest in any of the issues addressed by this report or by the *Information for Better Markets initiative* more generally, and it would be pleased to hear from them.

# 1. *The need for a debate*

## 1.1 CHALLENGES IN MEASUREMENT

Directly or indirectly, financial reporting measurements – of performance and financial position – affect almost everyone. They help to determine the allocation of capital across countries, economic sectors and companies and within individual businesses. They may well determine whether a business is regarded as a failure or a success, whether its employees earn a bonus, whether they keep their jobs, what dividends investors receive, and how much tax the business pays.

Growing controversy surrounds the question of measurement in financial reporting – mainly because of a perceived movement away from the traditional basis of measurement (historical cost) towards a new basis (fair value). Financial reporting standard-setters are also raising the question of measurement as one of general principle.

- In November 2005 the International Accounting Standards Board (IASB) issued a discussion paper, *Measurement Bases for Financial Accounting – Measurement on Initial Recognition*.
- The IASB and the US Financial Accounting Standards Board (FASB) agreed in 2005 to tackle ‘initial and subsequent measurement’ as Phase C in their eight-phase project to prepare a common conceptual framework.

Any resulting changes in the basis of measurement could be far-reaching in their effects. Nor would the effects be restricted to publicly listed companies – the primary users of IASB and FASB standards. If there are changes, there will also be pressures for smaller, privately-owned companies to move in the same direction.

While there is growing controversy, the question of measurement in financial reporting has not generated the interest it deserves, perhaps because many of those affected by it – both within the accountancy profession and the broader business community – would not regard themselves as sufficiently well briefed on the issues involved. This report’s *first purpose* is to improve understanding of how different financial reporting measurement bases work, their reliability, and their relevance, and to promote and shape debate.

Each basis of measurement in financial reporting has its supporters, and their views are often strongly held. This is not a new phenomenon. The Sandilands Committee, which considered the basis of measurement in the inflationary UK economy of the 1970s, noted that:

‘A good deal of the evidence put to us was concerned with the definition of profit ... We have been surprised at the vehemence of the debate and at the extent to which entrenched positions have been taken up in support of one concept or another.’<sup>1</sup>

Current measurement practices are complex, diverse and apparently inconsistent. There is clearly at least a case for something more consistent and, presumably, simpler. In the context of measurement, the aspiration expressed by Sir David Tweedie, the Chairman of the IASB, is an appealing one:

‘The real objective is to have one single set of accounting standards, so it doesn’t matter whether a transaction takes place in Brisbane or Beijing or Brussels or Boston, we’ll account for it the same way.’<sup>2</sup>

An impassioned approach to measurement that concludes that there is a demonstrably better way of doing things, and that everybody should adopt it, has its attractions. Although this report is sceptical, it would probably be unrealistic to expect this or any other report to persuade anyone with impassioned views on measurement to abandon them. But this report’s *second purpose* is to identify key points in the arguments for and against each basis of measurement, which can be tested and examined, so as to help an impartial observer form a view on the merits of different bases.

The challenge of how to choose between competing bases for particular measurements is in some ways a more difficult one than that of understanding how the bases themselves work and the arguments for and against them. Therefore, a *third purpose* of this report is to set out proposals for how standard-setters' decisions on financial reporting measurement might best be made.

### 1.2 AN EVOLUTIONARY PROCESS

Many different bodies of practices are used around the world for external financial reporting and these include different approaches to measurement.

- Different jurisdictions have developed their own financial reporting requirements, influenced by differences in the uses made of financial reporting information and in business and regulatory environments.
- Even within a single jurisdiction, different approaches are sometimes adopted for different entities in order to reflect variations in size, ownership and governance.
- Businesses undertake different types of transaction or hold different types of asset or liability. Practices develop that reflect the needs and experiences of particular types of business.

These bodies of practices are rarely systematic; they have evolved over time as collections of diverse responses to practical problems.

Historical cost remains the predominant basis of financial reporting. This reflects the foundation of financial reporting in book-keeping and the use of historical cost for management purposes. There are important exceptions to this generalisation: significant financial services businesses, for example, rely heavily on fair value information for management purposes. Nevertheless, transactions are initially recorded as they occur at amounts that form the basis of historical cost measurements. Historical cost is usually, therefore, the simplest and cheapest basis of financial reporting measurement to build on the foundations that are laid by a business's bookkeeping records and management information systems.

Generally, however, there has been an evolution away from pure historical cost and towards one version or another of current value – and at present towards greater use of fair value specifically. In some respects, the meaning of historical cost has evolved to accommodate this tendency.

Why have measurement practices developed in this way? It is possible to identify a number of reasons, all of which are responses to financial reporting problems.

- **New ways of doing business.**

Financial reporting is constantly changing to cope with new ways of doing business. For example, leasing, complex financial instruments, and share-based payments have each presented fresh challenges. In all of these examples items that are apparently valuable may have no historical cost or a historical cost of zero. This is the case with leased assets, with certain financial instruments such as interest-rate swaps, and with goods and services acquired using shares or share-based instruments. New reporting practices have evolved that allow or require such items to be recorded at a current or fair value as a proxy for historical cost. Business has also evolved so that a wide range of entities – not just insurance companies – create long-term liabilities with no definite cost at the time they are incurred. Warranties, reinstatement obligations, and defined benefit pension commitments are examples. It is difficult to know what the historical cost of such indeterminate liabilities for future amounts could be, and their measurement in accounts necessarily reflects expectations of the future rather than actual historical amounts. What these examples have in common is a commitment, to or by the business, to a possibly indeterminate future transfer of value. Historical cost is not well-designed to cope with accounting for such future transactions, but they are clearly relevant to understanding a business's financial performance and position.

- **Disparities between current value and historical cost.**

There are often large disparities between an asset’s historical cost and its current value. Questions inevitably arise, for example, as to whether the historical cost of a property bought 20 years ago, but now worth many times its historical cost, is more useful information to disclose than its current value. Practices have therefore developed that allow or require revaluations of certain assets. To deal with disparities in the opposite direction (i.e, where current value is significantly lower than historical cost), assets are written down to the amount that can be recovered from their sale or use.

- **The ability to manipulate historical cost results.**

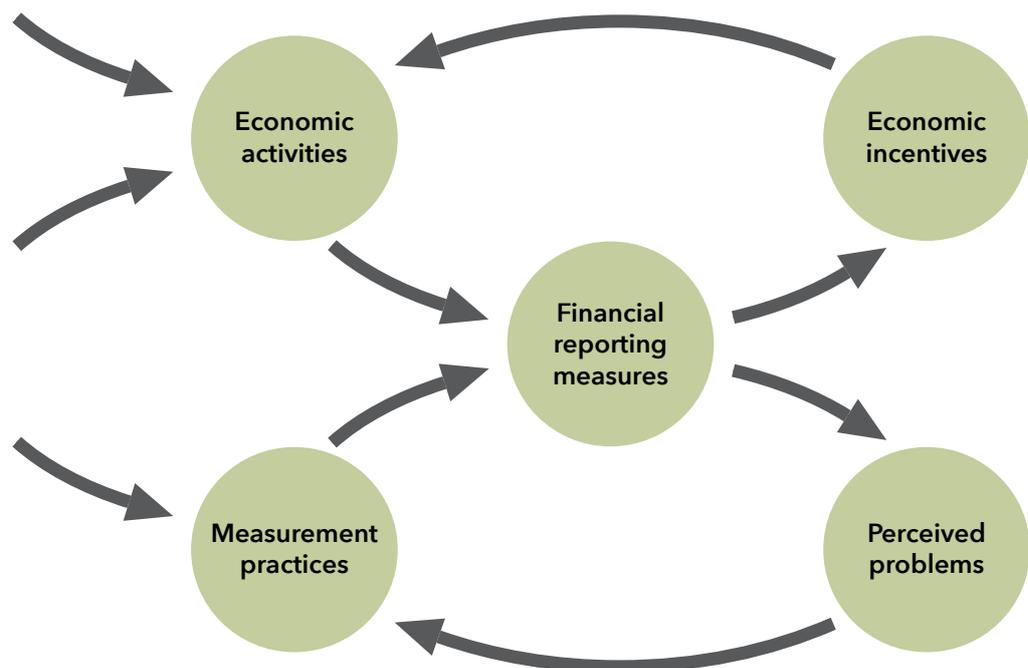
Some historical cost measurements can be manipulated to produce figures that may be regarded as misleading. For example, a portfolio of investments, whose value goes up and down from one year to the next, could be realised piecemeal so as to show a constant stream of historical cost profits.

Again, therefore, practices have developed that require regular revaluations of such assets.

These different causes of evolution in measurement practices do not fit into a neat chronological pattern, but there is a clear logic to the evolution. From a starting-point of historical cost (which would include accruals of income and costs) there is first a prudent recognition of future liabilities and impairments in asset values, towards what may be described as **recoverable historical cost** and, second, increasing recognition of some assets and liabilities at a current value, leading to a system that may be described as modified historical cost (or, more precisely, **modified recoverable historical cost**).<sup>3</sup>

The development of measurement practices is a dynamic and iterative process. This process is illustrated in Figure 1.1.

**FIGURE 1.1: THE DEVELOPMENT OF MEASUREMENT PRACTICES**



Financial reporting measures result from the application of measurement practices to economic activities. Although economic activities and measurement practices are the result of a range of influences, it is important to appreciate that they are also affected by financial reporting measures themselves. Measures influence economic activities<sup>4</sup> by affecting economic incentives. And arguably the most significant pressures for measurement practices to change arise because they are seen as failing to reflect economic activity appropriately or because they promote unwelcome economic activities.

Two of the examples just mentioned can be seen as instances of this process.

- When finance leases first emerged it was considered that financial reporting measurements failed to represent accurately this new form of economic activity. This led to new reporting requirements, which produced different measurements. But the new requirements provided economic incentives to change the structure of leases so that they fell outside the definition of a finance lease. This has left standard-setters with a decision as to whether they should amend measurement requirements so as to reflect the changed forms of economic activity.
- The disparity between the historical cost and current value of certain assets led to financial reporting measurements that were thought by some to be misleading. This resulted (in some jurisdictions) in a permissive approach to asset revaluations in accounts. But the new rules provided incentives to use the permission selectively so as to present the most favourable picture of financial position and performance. This led standard-setters to adopt a more restrictive approach, which has made it more difficult to use selective revaluations.

Reporting practices evolve in response to particular problems as they emerge. But the practices that develop to deal with one type of problem may well be inconsistent with those that develop to deal with another. IFRS illustrates the complexity that results.

### 1.3 MEASUREMENT UNDER IFRS

The standards for which the IASB is responsible - International Financial Reporting Standards (IFRS) - are one collection of financial reporting practices. They are increasingly important because of the growing number of companies around the world (especially listed companies) that are required to comply with them, and the growing number of countries - including the UK - that model their own more general financial reporting requirements on them.

IFRS incorporates and builds on the accumulated, often inconsistent practical solutions devised by national standard-setters to deal with financial reporting problems that have emerged over many years, solutions which are in turn built on the accumulated business practices of centuries. IFRS is not a completely new and uniform approach to financial reporting, but the outcome of a long and continuing evolution.

One area where IFRS measurement requirements still need to be developed is in accounting for insurance contracts. Insurance provides an example of some of the tensions that make measurement issues so difficult to resolve. The ultimate outcome of an insurance contract may remain uncertain for many years, but if profits remain unrecognised until all uncertainties are resolved, the accounts will give a misleading impression of an insurer's financial position and profitability in the interim. The question, therefore, is how uncertain future outcomes can best be anticipated in accounting so as to provide a fair picture of both the current position and performance to date. It is a question that is proving highly controversial, not so much because insurance poses unique measurement problems, but because it is an extreme example of measurement issues that pervade financial reporting.<sup>5</sup>

The note in Panel 1.1 gives a highly simplified summary of current IFRS requirements on measurement, drawing attention to some of the apparent inconsistencies. The summary gives an idea of the intricacies of the current position and shows that, among other things:

- the same assets (eg, plant and equipment) can be measured on different bases;
- different assets are valued on different bases (eg, plant and equipment can be measured at historical cost, biological assets must be carried at fair value);
- different liabilities are measured on different bases (eg, pension scheme liabilities must be discounted, deferred tax liabilities must not);
- fair value can be measured in different ways (e.g, sometimes market value, sometimes depreciated replacement cost); and
- the effects of inflation are treated in different ways (eg, sometimes reflecting the changing value of money, sometimes not).

### PANEL 1.1: SUMMARY OF IFRS MEASUREMENT REQUIREMENTS

Property, plant, equipment, intangible assets and exploration and evaluation assets for mineral resources may be carried at either historical cost or fair value. Assets on finance leases must be carried at the lower of fair value at the date of acquisition and the discounted value of the minimum lease payments at that date, less subsequent depreciation. Pension scheme assets are measured at fair value. Biological assets (living plants and animals) must be carried at fair value. Agricultural assets must be carried at their net fair value when they were harvested. Some financial instruments must be carried at fair value; others at historical cost. Inventories must be carried at the lower of historical cost and net realisable value. Construction contracts must be carried at historical cost plus a proportion of the expected profit. Mineral resources (mines, oil and gas wells), other than exploration and evaluation assets, are not covered by IFRS, which means that they can be measured on various bases.

The historical cost of a fixed asset is its gross cost less depreciation, calculated taking into account its expected remaining useful life and its likely residual value at the end of it. However, if the asset's recoverable amount is less than its depreciated historical cost, it must be written down to its recoverable amount, which is the higher of its net fair value and its value in use. Net fair value is fair value less selling costs. Value in use is the discounted value of future attributable cash flows.

Pension scheme liabilities must be measured by the projected unit credit method of actuarial calculation, which uses discounting. Deferred tax liabilities must not be discounted. Provisions must be stated at the best estimate of the expenditure required to settle the obligation; discounting is required where its effect would be material. The liability for a finance lease must be stated at the lower of the related asset's fair value at the date of acquisition and the discounted value of the minimum lease payments at that date, less amounts written back so as to produce a constant periodic rate of interest on the remaining balance.

The initial cost of assets and liabilities acquired in a business combination is their fair value at the date of acquisition. Fair value in this context can be measured by, among other things:

- market value
- estimated value
- present value
- selling price less the costs of disposal plus a reasonable profit allowance
- selling price less the sum of costs to complete and costs of disposal, plus a reasonable profit allowance
- current replacement cost
- depreciated replacement cost
- reference to an active market
- the amount that a third party would charge.

**PANEL 1.1: SUMMARY OF IFRS MEASUREMENT REQUIREMENTS (continued)**

With some exceptions, internally generated intangibles are not recognised; where they are recognised, they are measured at historical cost. Internally generated intangibles acquired in a business combination are, subject to conditions, recognised and measured at fair value at the date of the combination.

Goods and services received in share-based payment transactions are measured at their fair value where this can be measured

reliably, otherwise at the fair value of the equity instruments granted. Transactions with employees and others providing similar services are required to be measured at the fair value of the equity instruments granted.

Financial statements of companies that report in the currency of a hyperinflationary economy must be restated in terms of current purchasing power. Financial statements of companies that report in a less than hyperinflationary currency are not restated.

**1.4 OPTIONS FOR CHANGE**

Inconsistency in measurement practices is seen by some to be a problem in itself. There is a drive towards greater theoretical consistency in approaches to measurement questions, as shown by the recent IASB paper on measurement on initial recognition and the decision by the IASB and FASB to include measurement as a key topic in their common conceptual framework. As existing measurement practices are so complex, diverse and apparently inconsistent, it is worth examining the case for a complete overhaul so as to secure a simpler, more uniform and consistent approach. Also, the perceived direction of change in financial reporting towards the greater use of fair values is a source of widespread unease and needs to be debated.

In deciding the future direction of change – or whether there should be any – there are two key choices to be made on consistency or diversity in the bases of measurement used in financial reporting:

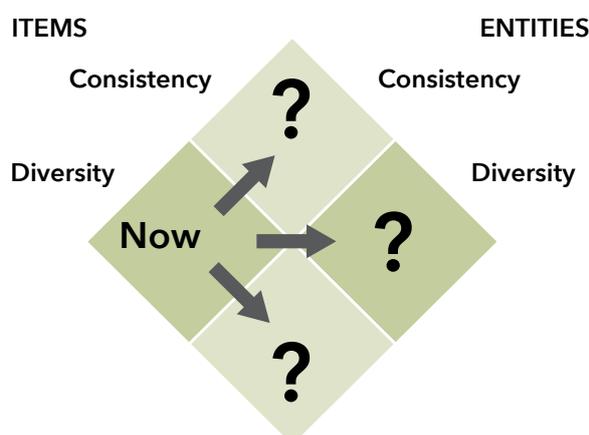
- whether to require consistency for different items within an entity's accounts;
- whether to require consistency across different types of entity.

At present, the position is broadly the same under IFRS and various national regimes, including the UK's. There is diversity within an entity's accounts with, different items being measured on different bases, but a considerable degree of consistency across entities of different sizes, with different legal forms and in different industries.

The current situation and the options for change are represented in Figure 1.2 below which shows options of diversity and consistency in the measurement of different items in accounts and options of diversity and consistency across entities. In the figure:

- the left quadrant shows the status quo position of diversity within accounts but consistency across entities;
- the top quadrant shows the option of consistency within accounts and across entities;
- the right quadrant shows the option of consistency within accounts but diversity across entities; and
- The bottom quadrant shows the option of diversity both within accounts and across entities.

FIGURE 1.2: OPTIONS FOR BASES OF MEASUREMENT



It is conventional in studies on measurement to identify one basis as the best available for financial reporting purposes and to recommend that, as far as possible, it should be generally adopted. This would imply moving towards a solution in the top quadrant. However, would it be feasible to take a top-down approach to arrive at a preferred basis of measurement and apply it to all situations? Or would such an approach create economic incentives and perceived problems that would make it unstable and unsustainable? Would it be better to stay where we are or choose other new options?

The final and *fourth purpose* of this report is therefore to help decide whether financial reporting should adopt a more consistent approach to measurement or continue, as now, to adopt different measurement bases for different items in accounts.

### 1.5 STRUCTURE OF THE REPORT

The remainder of this report is structured as follows:

- Chapter 2 looks at the difficult problems presented by financial reporting measurement.
- Chapter 3 discusses the principal measurement bases – how they work and the reliability and relevance of the resulting measurements.
- Chapter 4 looks at the public policy considerations involved in financial reporting measurement.
- Chapter 5 sets out a practical approach to regulating measurement.
- Chapter 6 suggests topics for research on measurement issues.

#### PANEL 1.2: PURPOSES OF THIS REPORT

- To improve understanding of how different financial reporting measurement bases work, their reliability, and their relevance, and to promote and shape debate.
- To identify key points in the arguments for and against each basis of measurement, which can be tested and examined, so as to help an impartial observer form a view on the merits of different bases.
- To set out proposals for how standard-setters' decisions on financial reporting measurement might best be made.
- To help decide whether financial reporting should adopt a more consistent approach to measurement or continue, as now, to adopt different measurement bases for different items in accounts.

## ***2. Issues in financial reporting assessment***

### **2.1 SOURCES OF FUNDAMENTAL PROBLEMS**

There are specific problems that affect the different bases of measurement available to financial reporting: historical cost, value to the business, fair value, realisable value and value in use. How the different bases work will be considered in the next chapter, but it will be helpful to look first at some issues that generally beset financial reporting measurement.

When applied to financial reporting the term *measurement* can give a misleading impression of certainty and objectivity. In daily life, *measurements* are typically made of the physical characteristics of physical objects – such as height, weight, temperature and so on. If accurate measurement tools are employed, information of this sort is objective and uncontroversial. The subjects of measurement in financial reporting, however, are abstract concepts of uncertain meaning such as income and net assets. For this reason alone, their measurement is always liable to be controversial.

All measurements in financial reporting are expressed in monetary terms and therefore purport to be measurements of *value*. However, value can mean different things. A particular asset might be valued at, for example, its historical cost, its replacement cost or its market value. It cannot be said that any one of these measurements is the one and only correct value for the asset. Each value, if the measurement is made properly, will be correct on the basis being used. In their conceptual frameworks, the financial reporting standard-setters refer to the different *attributes* of assets and liabilities, which give different values when measured. Historical cost, replacement cost and market value are all attributes in this sense.

The diversity of the purposes for which financial reporting information is used means that a basis of measurement appropriate for one purpose may not be appropriate for all other purposes. If you ask someone the question, 'What is this company's income?', the reply 'Why do you want to know?' may be a sensible first step towards providing a useful answer. There is no single, right answer to the question.

These considerations are of particular importance because of an additional characteristic of financial reporting measurement which is a consequence of double-entry bookkeeping. It is impossible to measure one thing (such as an asset, liability, income or expense) without measuring something else (the other side of the bookkeeping entry) at the same time. Sometimes this feature of double-entry can lead to unfortunate results. For example, attempts to produce a sensible measure of income can lead to asset or liability measurements that do not seem to make sense, or vice versa.

Financial reporting measurement is therefore problematical because:

- the results are affected by the purpose of measurement; and
- double-entry bookkeeping can mean that sensible measures of one item in the accounts lead to less sensible measurements of another.

However, even if clarity and agreement were possible on these inherently subjective matters, financial reporting measurement would still face difficulties because it attempts to capture a continuous process of business activity at a particular moment in time (in the balance sheet) or between two moments in time (in the profit and loss account or income statement). At any moment, a business will be in the middle of a number of incomplete activities. It may, for example, have:

- services in the course of being provided to customers;
- raw materials that have not yet been turned into work-in-progress, work-in-progress that has not yet been turned into finished goods and finished goods that have not yet been sold;
- debtors that have not yet been turned into cash;
- liabilities that have still to crystallise;
- financial instruments that have not matured;

- research, development and exploration activity whose results are still uncertain;
- fixed assets whose useful lives are still in progress;

and so on. Capturing these incomplete processes at a particular moment, or between two particular moments, and expressing them in monetary terms, is inevitably a somewhat arbitrary process. How it is done is a matter of judgement and convention and involves grappling with four fundamental problems. These are the problems of:

- determining what separable assets are to be measured;
- predicting how incomplete business activities will turn out;
- allocating values to different separable assets and different past and future accounting periods; and
- identifying markets and other sources of values that can be incorporated into the measurement of incomplete business activities.

The next four sections deal respectively with the determination of separable assets, prediction, allocation to periods and assets, and identification of markets and transactions.

## 2.2 DETERMINATION OF SEPARABLE ASSETS

Businesses are created to bring together diverse resources and generate synergies that will be realised in jointly produced cash flows. While businesses typically acquire assets separately, therefore, they realise benefits from them jointly. If no synergies were anticipated, there would be no point in bringing resources together in the first place. As a result, combinations of resources where synergies are believed to exist typically command a higher price when sold jointly than they would when sold separately. This creates a problem for example for the fair value and realisable value bases, which typically look at the amounts that could be realised from the disposal of separable assets.

Consider the case of an item of plant that could be dismantled, which forms part of a process within a factory that contains a number of processes, where the factory belongs to an operation that has a number of different factories, and the operation itself forms just one division of a company, which is part of a larger group. From the point of view of the group accounts, there are various layers of separability in this example:

1. the dismantled parts of the item of plant;
2. the item of plant;
3. all the plant for the process;
4. the factory;
5. the division; and
6. the company.

The usual answer to the question ‘What is the separable asset?’ would in this case be: the item of plant. However, as all six layers of assets below the level of the group itself are capable of being sold separately from the group, it is not clear by what logic this is the correct answer.

One area where the problem of jointness causes particular problems is in the valuation of brands. It is extremely difficult in practice, and will often be impossible, to separate the value of a brand from the value of the business to which it belongs. As one brand valuer has commented: ‘People clearly don’t buy and sell brands, they buy and sell businesses’.<sup>6</sup> Nor can the cash flows attributable to a brand be separated objectively from those attributable to a business’s other assets. However, whilst it might be argued that a brand could not be a separable asset for accounting purposes, it is unclear why a business that includes a brand could not be.

What is more, if the business as a whole makes sense (ie, its owners would not be better off if it were taken apart), there are synergies at each layer of the hierarchy of separability described above. It would therefore be expected that:

1. the value of the item of plant would be greater than that of its dismantled parts sold separately;
2. the value of all the plant for the process would be greater than that of its component items of plant sold separately;
3. the value of the factory would be greater than that of its component processes sold separately;
4. the value of the division would be greater than that of its component factories sold separately;
5. the value of the company would be greater than that of its component divisions sold separately; and
6. the value of the group would be greater than that of its component companies sold separately.

In view of this, while it is natural to focus on the individual-item-of-plant level when applying historical cost measurement, why is this sensible when measuring fair value or realisable value, when this will usually be an uneconomic level of separability at which to dispose of a business's resources? The choice of one level rather than another is arbitrary and appears to defy objective resolution.

Other bases of valuation are forced to consider higher levels of aggregation. Value in use looks at the future cash flows attributable to assets. Because cash flows are typically produced by assets jointly, the value in use basis is appropriately applied to income generating units - businesses or business units. If value in use were to be used as the general basis of financial reporting measurement, it should logically require a change in the items recognised. Accounts would measure income generating units rather than separable assets and liabilities.

Value to the business also faces a jointness problem in determining replacement costs. This problem does not arise where, for example, an asset would be replaced by an identical asset - and in practice this may often be the case. However, in other cases, replacement cost measures the cost of replacing service potential - ie, outputs - and the outputs that represent service potential are typically produced by assets jointly. So looking at the replacement cost of assets individually may be misleading. In these circumstances, the most appropriate figures for replacement cost are those of service-generating units or businesses. Where assets at a lower level of aggregation do not have a measurable service potential, any attribution of service potential to individual assets would involve a judgemental allocation.

### 2.3 PREDICTION

Many measurements in financial reporting involve predictions.<sup>7</sup> For example:

- A fixed asset's remaining useful life is predicted in order to calculate its annual depreciation.
- The recoverability of debts and the realisable value of stocks (or inventories) are predicted in order to confirm their balance sheet values.
- The ultimate outcome of long-term contracts is predicted in order to decide what profits or losses should be recognised to date.
- Future cash flows are predicted in order to calculate a fixed asset's value in use or its recoverable amount.
- Future payments are predicted in order to assess what provisions should be made for them (eg, for defined benefit pension schemes, product warranties, reinstatement obligations, and disputed litigation).

The further these predictions reach into the future, the less certain and more subjective they become.

## 2.4 ALLOCATION TO PERIODS AND ASSETS

Many measurements in financial reporting involve allocations of costs and revenues to different accounting periods and different assets. These allocations inevitably include an element of arbitrariness and therefore subjectivity. For example:

- Depreciation of fixed assets involves judgemental allocation decisions (as explained below).
- Where assets are bought for stock (or inventory) and subsequent resale, unless the cost of each one can be individually identified (or unless their purchase price never changes), calculation of a particular asset's purchase price involves a judgemental allocation.
- For measurements of discounted future liabilities, allocation to different accounting periods depends on the choice of an appropriate discount rate, which inevitably involves an element of judgement.
- Where businesses acquire assets jointly, as in a takeover, deciding how the acquisition price should be divided among the separable underlying net assets involves judgemental allocation decisions.
- Allocation problems also arise from the attribution of a business's outputs, whether measured in terms of money or service potential, to the individual assets that jointly produce them.

Depreciation involves more than one kind of fundamental problem. As already noted, it involves the problem of prediction because it requires assumptions about the future useful life of the asset being depreciated. However, even if we have perfect knowledge of the future, depreciation still involves judgemental decisions as to how the cost of the fixed asset will be allocated.

- It could be allocated by period or by item produced by or with the asset.
- Where it is allocated by period, there is a choice between allocating the cost:
  - evenly across periods (the straight line basis);
  - more heavily to earlier years (the reducing balance and sum of the digits bases); or
  - more heavily to later years (using an actuarial basis so as to achieve a constant rate of return).

There are rational arguments in favour of each of these approaches, but the actual choice is a question of judgement.

## 2.5 IDENTIFICATION OF MARKETS AND TRANSACTIONS

Many measurements in financial reporting are, or purport to be, based on current market values. The case for such measurements is strongest where values can be taken from active markets and can therefore be objectively verified.

An active market is described in the Application Guidance to IAS 39, *Financial Instruments: Recognition and Measurement*, as one where 'quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's-length basis.' The range of assets for which active markets (defined in this way) can be expected to exist is a narrow one, and the majority of market transactions do not take place in active markets in this sense.

Much of the economic process takes place within firms rather than through market transactions. To the extent that this is the case, there are many assets that one would not expect to be traded in the form and condition in which they exist at the date of a company's balance sheet. For example, a manufacturing business buys in a number of different items – raw materials, part-manufactured goods, labour services, and so on – and sells them on in a transformed condition when the manufacturing

process has been completed. Between these two points, there are no market transactions and markets would not be expected to exist for partially transformed inputs (unless other manufacturers buy or sell at alternative stages of the production cycle). Part-manufactured goods and part-used fixed assets that are not normally sold can be sold, but their value will not be constantly evidenced by market quotes and transactions.

Further, where items held for business purposes that are not normally sold are sold, the value they realise is liable to be significantly lower than either what they cost in the first place or their value to the business. The reason for this is again that economic processes take place to a large extent within firms, and assets that have entered an in-firm process are typically, to a significant degree, particular to that business. They are of limited use (and therefore limited value) to other parties, unless those parties buy the business.

Similar problems arise for the provision of services - and there are perhaps even greater difficulties in this context. The provision of a service (a consultancy service, for example) is developed within a business by bringing together and combining the various factors of production. There is rarely a market for a service in the course of being provided (i.e, a contract on which the work is incomplete). Services are completed *within* firms, not sold part-finished for completion by another provider.

Markets are also conspicuously absent for some classes of liability. For example, there are no markets to assume the liabilities of active defined benefit pension schemes. The benefits under such schemes are usually defined in terms of future salaries, which are as yet not merely unknown but partly under the control of the company that sponsors the pension scheme. Why would anyone take on a liability that the party they are acquiring it from can subsequently decide to make larger? Similarly, there are no markets to take on liabilities for reinstatement costs or, to move to a more mundane example, to take on businesses' liabilities to trade creditors. As a generalisation, markets for liabilities are thinner and scarcer than markets for assets.

Lack of active markets is a problem not only for the reliability of measurement information, but also for its relevance. One of the arguments for measuring assets at current values is that 'the market price of an asset [is] an equilibrium price that reflects the expectation that the asset will earn the current available market rate of return for equivalent risk',<sup>8</sup> and that knowing this value therefore helps users to predict the business's future cash flows. But this is only true in an *efficient market*. The less active a market is, the less it matches the ideal of an efficient market, and the less market prices possess the characteristics that are supposed to render them especially informative in predicting a business's future cash flows.

It could be said that the essential problem of measurement is that there are not enough transactions. All financial reporting measurements depend ultimately on real or imagined transactions. If there were enough transactions to show actual values for all assets and liabilities, then perhaps there would be no measurement problems, but for many items in accounts there are not enough relevant transactions.

### 2.6 OVERLAPS IN MEASUREMENT PROBLEMS

It would be convenient if the fundamental problems that arise in making one type of measurement were compensated for by an absence of problems in making other types of measurement. For example, it would be helpful if items that are affected by having to rely on predictions and allocations were ones for which markets and transactions could readily be identified and vice versa.

To some extent such compensations do exist. A company that makes multiple purchases of a commodity for stock (or inventory), each at a different price, may well mix up the physical stocks in its stores, with the result that identifying the historical costs of the stocks that have been used up and of those still on hand at the balance sheet date is physically impossible. But there are active markets for some commodities. So the company may be able to avoid arbitrary judgements in attributing a

historical cost to its remaining stock at the balance sheet date by using current market prices instead (if that is permitted). Conversely, the absence of markets to assume responsibility for businesses' liabilities to their trade creditors does not normally create measurement problems. Historical cost seems to work perfectly well.

Unfortunately, for many business assets and liabilities, items that are affected by one type of fundamental measurement problem are also affected by another. For example, calculating the depreciated historical cost of plant and machinery can involve significant subjectivity because predictions of the future are involved in estimating its remaining useful life and judgemental decisions have to be made on how its cost will be allocated; and subjective decisions that ignore problems of jointness may have to be taken in calculating recoverable amounts for particular assets. But typically there are no active markets for second-hand plant and machinery, so current market prices would not provide an alternative source of objective measurement information. Indeed, some would argue that fixed assets generally provide the most difficult and pervasive practical problems in financial reporting measurement.

Similarly, liabilities for which there are no markets – such as liabilities for active defined benefit pension schemes and for reinstatement costs – are often precisely those for which historical cost calculations also face difficulties as they depend on subjective estimates of costs to be met in the possibly distant future.

There is no neat symmetry, therefore, in the fundamental problems of financial reporting measurement. For some items, it is possible to find a measurement technique that avoids fundamental problems, but for others they seem to be unavoidable no matter what technique is employed. There are many business assets and liabilities for which there are not active markets, and for many of these, where values cannot be taken directly from current market prices, judgements of allocation and prediction, and subjective decisions that ignore problems of jointness, cannot be avoided. While for such items there are no reliable measurements, this does not mean that it would be best to leave them out of the accounts. An unreliable measurement is often better than none.

#### PANEL 2.1: SUMMARY OF THE ARGUMENT

- Financial reporting measurements are inevitably a matter of judgement and convention.
- All of the available bases of measurement are affected by fundamental problems that make them subjective and judgemental for some items. These problems are:
  - determination of separable assets;
  - prediction;
  - allocation to periods and assets; and
  - identification of markets and transactions.
- Items that are affected by one or more of these fundamental problems when one measurement technique is used may well be faced by another fundamental problem if an alternative technique is tried. For such items there is no escape from subjectivity in measurement.

## 3. *Measurement choices*

### 3.1 FIVE BASES OF MEASUREMENT

The measurement bases that will be considered here are:

- historical cost;
- value to the business (also known as deprival value or current cost);
- fair value;
- realisable value; and
- value in use.

All these bases are forms of accrual accounting – that is, they are intended to measure income as it is earned and costs as they are incurred, as opposed to simply recording cash flows. The last four are all forms of current value measurement.

This report argues that in forming a judgement on the appropriateness of measurement bases, the overriding tests should be their cost-effectiveness and fitness for purpose. However, in the absence of direct evidence on these matters, it is usual to argue in terms of various secondary characteristics that ought to be relevant in assessing the quality of information. These are discussed in Appendix 1. The most important of these characteristics are generally considered to be relevance and reliability. The discussion in this chapter focuses on these two even though a current discussion paper issued by the IASB and FASB<sup>9</sup> questions whether reliability is a quality of useful financial reporting information and proposes faithful representation as a key quality in its place.

For each basis, an outline is given of how it works and the reliability and relevance of the resulting measurements. The question of measurement costs is also considered briefly at the end of this chapter. In reading the analyses that follow, the following comments should be borne in mind.

Bases of measurement in financial reporting are not carved in stone. Different people have different views on how each basis should work, and meanings evolve as practice changes. Some readers may therefore find that the way a particular basis is described does not match how they understand it. This does not mean either that their understanding is wrong or that the description in the report is wrong; views on these things simply differ.

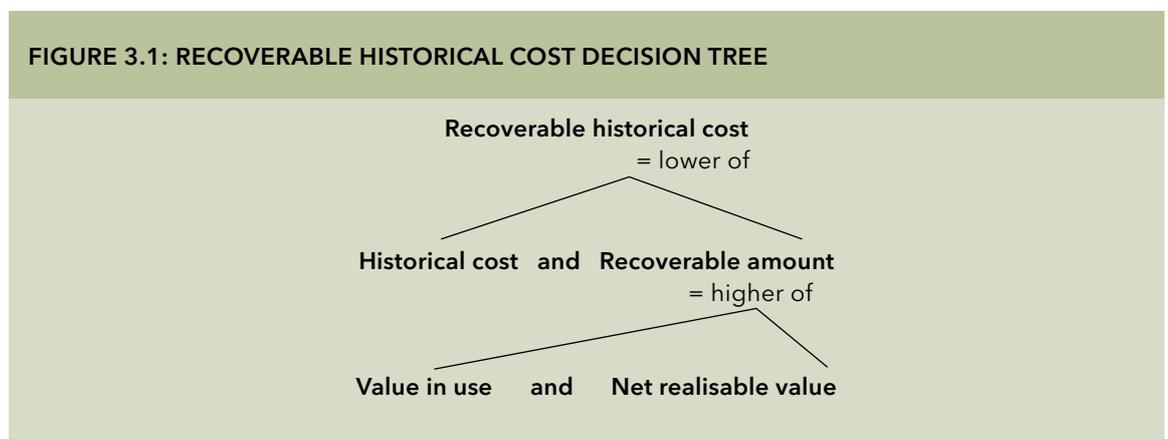
- Although it is conventional to consider questions of recognition (ie, what items should be recognised in accounts) and measurement (ie, how recognised items should be measured) as entirely separate, in practice different measurement bases lead to the recognition of different assets and liabilities. This is reflected in the discussion of the bases in this chapter.
- Assertions on which financial reporting measurements are relevant and which are reliable are debatable, and the statements made in this chapter can be disputed. For this reason, the report includes suggested topics for research to try to reach evidence-based conclusions on these issues. The statements made on them here should therefore be seen as working hypotheses subject to potential amendment in the light of further evidence.
- Broad generalisations about reliability are also open to the objection that reliability is often a question of shades of grey rather than black and white. A measurement may be accurate within a certain range or with a certain degree of probability. To describe it merely as reliable or unreliable is a simplification.

### 3.2 HISTORICAL COST

#### 3.2.1 HOW IT WORKS

The historical cost of an asset is the amount paid for it and the historical cost of a liability is the amount received in respect of it or the amount expected to be paid to satisfy it.

Historical cost accounting is usually interpreted nowadays to require that the amount at which an asset is stated in the accounts should not exceed the amount expected to be recovered from either its use or its sale (its recoverable amount). Historical cost as it is currently understood is therefore recoverable historical cost. Recoverable amount is usually considered to be the higher of an asset's realisable value and its value in use. The resulting formula for determining an asset's recoverable historical cost is summarised in Figure 3.1 below:



This is expressed in different ways. For an item of stock (or inventory), value in use is not normally relevant, so the usual formula is the lower of historical cost and net realisable value. For a fixed asset in profitable use, net realisable value is not normally relevant, so the usual question is: which is the lower of historical cost and value in use? Sometimes fair value is used instead of either recoverable amount or one of its elements.

Under historical cost accounting, where an asset increases in value above its historical cost amount, the gain is not recognised until it is realised. Unrealised gains are excluded from income and from the balance sheet. The recognition of gains is therefore to some extent under the control of management, which can decide when assets are realised and so when any related gains are recognised.

Many intangible assets are not recognised under historical cost accounting because their capacity to generate future revenue is too uncertain at the time their costs are incurred for them to qualify as assets. Some financial assets and liabilities are not recognised under historical cost accounting because they have no historical cost (ie, their historical cost is zero).

In terms of income measurement, the objective of historical cost is to match costs as they are incurred with income as it is realised. The cost of a fixed asset is therefore written off over its expected useful life, and the measurement shown in a balance sheet represents costs incurred that will be written off against the future income they are expected to help generate.

#### 3.2.2 HISTORICAL COST: RELIABILITY

##### Areas of objectivity

Historical costs can usually be measured reliably when they are taken from prices in actual transactions. For example, the original purchase price of a fixed asset or an item of stock (or inventory) may be clearly identifiable, and amounts received (giving a measurement of a liability) and amounts owed to the business (debtors) may also be objectively measurable.

### Areas of subjectivity

Many subjectivities in historical cost arise from the fundamental problems of prediction and allocation to periods and assets – for example, in relation to depreciation, the cost of self-produced assets, estimates of recoverable amount, and liabilities for future costs. Advocates of historical cost argue that, while these areas of subjectivity undeniably exist, for some of them, such as depreciation, there is a limit to how far historical cost can go wrong.

### 3.2.3 HISTORICAL COST: RELEVANCE

#### Possible uses

Information prepared on a historical cost basis might be more relevant for some purposes than information prepared on other bases. For example, because it does not recognise unrealised gains on assets, historical cost is more conservative than any of the current value bases and this may appeal to some users.

- Lenders and other creditors may consider that their interests are better protected if net assets are measured conservatively, as this reduces the extent to which the company's assets can be paid out as dividends. They may regard the distribution of unrealised gains, which historical cost avoids, as especially risky. Shareholders also gain to the extent that it is therefore easier for the business to raise loans and other credit.
- If the business is taxed on its reported profit, then historical cost has the advantage from the taxpayer's point of view (and arguably also from the point of view of public policy) that it avoids the problems of finding cash to pay tax on unrealised gains.
- Where managers are rewarded on the basis of reported profit, investors may prefer it to be measured with caution. If profits subsequently prove to be overstated, investors are unlikely to be able to get the company's money back from its managers.<sup>10</sup>

It has also been argued that the relative objectivity of historical cost makes it the best 'means of solving conflicts of interest in income distribution'. Using more subjective measures would result in 'a flood of law suits [about] disputes over income figures, and the social cost of accounting [would] become phenomenal.'<sup>11</sup>

Other important characteristics of historical cost information that may appeal to some users are that:

- Its fundamental approach of comparing costs incurred with income realised seems to some users to match a fundamental objective of business.
- For most businesses, it is more likely than other measurement bases to match the information that management uses.

#### Criticism of relevance

Critics of historical cost argue that its measurements:

- are inherently irrelevant to any contemporary decision because they are out-of-date information and provide no guide to an entity's current financial position;
- typically ignore internally generated intangibles, which are increasingly critical to businesses, as well as financial instruments that have no cost; and
- fail to take into account unrealised gains, and may therefore significantly understate both net assets and income or allocate income to particular years on grounds (realisation) that should be irrelevant to its measurement.

**PANEL 3.1: HISTORICAL COST - SUMMARY OF KEY ARGUMENTS****RELIABILITY**

Reliable when based on actual transactions. Subjective when based on predictions and allocations.

**RELEVANCE**

**For:** Matches costs with realised income. For most companies, aligned to management information.  
**Against:** Based on out-of-date measurements. Ignores unrealised gains. Measures some key assets and liabilities at zero.

**3.3 VALUE TO THE BUSINESS****3.3.1 HOW IT WORKS**

For any given asset, the value to the business basis of measurement<sup>12</sup> tries to answer the question: how much worse off would the business be if it were deprived of it?

The answer, as a rule, is given by the asset's replacement cost. The logic of how this answer is arrived at is somewhat complicated, and is given in Panel 3.2. For a liability, value to the business measures how much better off the business would be if it were relieved of it. It will be seen from the figure in Panel 3.2 that the structure of the value to the business decision tree parallels that of recoverable historical cost as shown in Figure 3.1. Indeed, value to the business could be seen as simply another name for recoverable replacement cost.

Because there are markets for only a proportion of the assets held by companies in the age and condition in which they exist at the balance sheet date, there is often no price available for a comparable replacement asset. For this reason, it is usual in practice to calculate replacement cost by taking the price of a new replacement asset and, in the case of fixed assets, making an appropriate charge for depreciation and an adjustment for differences in service potential between the original asset and its replacement.<sup>13</sup>

The measurement of liabilities on a value to the business basis is full of difficulties. The key problem is that replacement cost, the central concept in value to the business accounting for assets, is of doubtful applicability for liabilities. One authority, in discussing the point, comments that replacement cost 'cannot fit comfortably into the liability pattern, and attempts to squeeze it in must muddle our reasoning.'<sup>14</sup> Beyond noting that the experts are perplexed on this issue, it is not proposed to discuss it here.

Value to the business implies recognition of gains as they arise rather than as they are realised, but it excludes from operating profit gains that arise purely from holding assets (i.e. gains from changes in purchase prices between an item's acquisition and its sale or consumption, subject to the recoverable amount test).<sup>15</sup>

Value to the business also implies the recognition of assets and liabilities that are unrecognised under historical cost. For example, the historical cost of an intangible asset might be written off as it is incurred because it is uncertain at the time whether an asset is being created. Once the asset definitely exists, its value to the business should be recognised and measured in the same way as for any other asset. An alternative interpretation, however, would restrict the assets (and liabilities) recognised under value to the business to those recognised under historical cost.

Value to the business has been advocated as a way of measuring a business's profit so as to maintain its operating capability (or service potential). The argument is that if a business is to maintain its operating capability, it needs to charge against profit the current replacement cost of the assets it consumes in its operations - which, at a time of rising prices, will be higher than their historical cost. Otherwise, it risks paying out as dividends amounts that are needed to finance its continuing operations.

**PANEL 3.2: THE LOGIC OF VALUE TO THE BUSINESS**

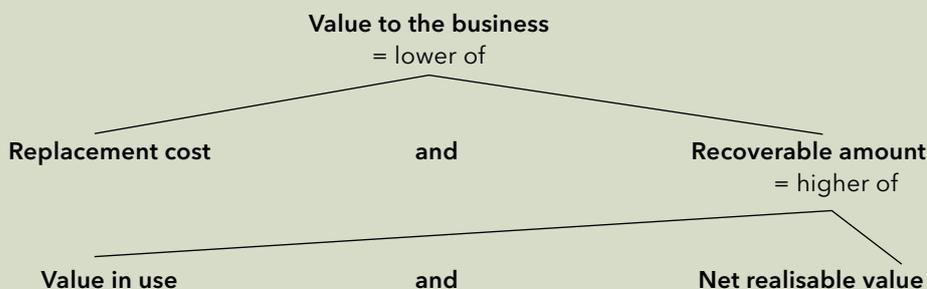
For any given asset, value to the business tries to answer the question: how much worse off would the business be if it were deprived of it? There are various ways of answering this question.

- If the asset is held for resale, then the business may be worse off by the amount, net of costs, for which it could have sold it (net realisable value).
- If the asset is held to be used in the business to generate income, then the business may be worse off by the net amount that the asset's use could have generated (value in use). As this amount is a stream of (net) future income, it would be usual to discount the expected future cash flows to a present value.
- If the asset can be replaced, the business may be worse off by the amount that it would cost to replace it (replacement cost).
- Which way of answering the question is most appropriate for any given asset depends on the relationship between the values calculated for net realisable value, value in use and replacement cost. The relevant decision tree is shown in the figure below.

Whether it is more sensible for a business to sell an asset or to keep it and use it depends on which figure is higher: net realisable value or value in use. If net realisable value is higher, then it makes sense to sell the asset; and the loss to the business if it is deprived of the asset is then shown by its net realisable value. If value in use is higher, then it makes sense to use the asset; and the loss to the business if it is deprived of it is then shown by its value in use. The higher of net realisable value and value in use is the asset's recoverable amount. If an asset cannot be replaced, its recoverable amount shows its value to the business. If an asset can be replaced, the question is then: is it worth replacing? If the asset's replacement cost is less than its recoverable amount, then it is worth replacing.

If the asset's replacement cost is more than its recoverable amount, it is not worth replacing. Where an asset is worth replacing, the replacement cost measures the loss the business would suffer if deprived of the asset. Where an asset is not worth replacing, the recoverable amount measures the loss.

**VALUE TO THE BUSINESS DECISION TREE (FOR ASSETS)**



How far the measurement of profit after maintaining operating capability should reflect the extent to which operating assets are financed by creditors (or by gearing), rather than by shareholders, is also a controversial issue. To the extent that they are financed by creditors, it is debatable whether the additional operating costs recognised on the value to the business basis should be charged against the profit attributable to shareholders.

### 3.3.2 VALUE TO THE BUSINESS: RELIABILITY

#### Areas of objectivity

Some value to the business measurements, where assets are in fact being replaced by other assets with the same service potential, will be objective as they will reflect the prices the business is currently paying, without the need for further adjustment.

#### Areas of subjectivity

Where assets are not being replaced, or are being replaced by different assets, or by assets with a different service potential, value to the business measurements are likely to be subjective. Such situations are common as markets and technologies change. Value to the business also shares the subjectivities inherent in historical cost's reliance on predictions and allocations (e.g, in calculating depreciation, allocating costs for self-made assets, and predicting useful lives).

### 3.3.3 VALUE TO THE BUSINESS: RELEVANCE

#### Possible uses

Information prepared on a value to the business basis might be more relevant for some purposes than information prepared on other bases. For example, the value to the business basis typically leads to measurements at replacement cost, which might be of interest to the following types of user:

- Potential competitors could use replacement cost information to assess the costs of entering a particular market. Existing investors could use the information in a similar way to assess how vulnerable the business is to competition from new entrants.
- Competition authorities might also be interested in replacement costs to assess how easy it would be for new entrants to join a market, and to help form a judgement on whether rates of return in the industry appear to be excessive.<sup>16</sup>
- Investors may want to assess whether the business is maintaining its operating capability.

Value to the business is also sometimes argued to have the advantage of providing a compound basis of measurement, with the basis for each individual asset and liability being the most relevant for each item (in accordance with the logic explained in Panel 3.1). However, as Figure 3.1 shows, recoverable historical cost provides a compound basis of measurement in a similar way.

#### Criticism of relevance

Critics of value to the business argue that what is relevant to a business's owners is profit after maintaining financial capital, rather than profit after maintaining operating capability. A business can increase its owners' wealth while reducing its operating capability or increase its operating capability while reducing its owners' wealth. So why should investors focus on operating capital maintenance?

It may also be argued that information measured from the perspective of a potential market entrant does not provide the most relevant information on financial position or performance for users generally. Moreover, it may be felt that the concept of replacement which lies at the heart of value to the business has become less relevant in a modern economy, where there is usually significant change in markets and technologies.

**PANEL 3.3: VALUE TO THE BUSINESS - SUMMARY OF KEY ARGUMENTS****RELIABILITY**

Reliable when there are markets for comparable replacement assets. Subjective when technologies and markets change, and when based on predictions and allocations.

**RELEVANCE**

**For:** Shows costs of entry to new entrants. Shows whether operating capability is being maintained.

**Against:** Maintenance of operating capability not the priority for investors. New entrants' perspective not the most relevant for existing investors.

**3.4 FAIR VALUE****3.4.1 HOW IT WORKS**

The concept of fair value is currently in transition. FASB's Statement of Financial Accounting Concepts No 7, *Using Cash Flow Information and Present Value in Accounting Measurements*,<sup>17</sup> defines the fair value of an asset (or liability) as:

'The amount at which that asset (or liability) could be bought (or incurred) or sold (or settled) in a current transaction between willing parties, that is, other than in a forced or liquidation sale.'

A notable feature of this definition is that it treats an asset's sale and purchase prices as the same. In practice, for any given market participant the two prices are likely to be different. The effect of the definition, therefore, is that fair value is neither an actual buying nor an actual selling price, but a theoretical value somewhere between the two.

This approach to fair value as an exchange value (rather than a buying or selling price) is reflected in the definition used in current IFRS: 'Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction.'<sup>18</sup>

The concept of fair value as an exchange value presents some difficulties. It creates a tension, for example, with the principle that ideally fair value is a theoretical value distinct from either buying or selling prices, actual market prices will never quite match it. The more active the market, however, the less significant this point becomes. For example, in valuing traded securities in accounts it is usual to take the mid-market price as fair value. While this is neither a buying price nor a selling price, it is a value clearly based on and very closely related to market prices.

FASB's latest view, in FAS 157, *Fair Value Measurements* (September 2006), avoids this difficulty. The standard defines fair value as 'the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between marketplace participants at the measurement date'. In principle, this is the same as market value. Although actual transactions are usually regarded as taking place at fair value, FASB envisages situations in which they would not be - where a party to the transaction sells at a price lower than it could have done or buys at a price higher than it could have done.

FAS 157 (paras 12-14) also states: 'A fair value measurement assumes the highest and best use of the asset by market participants ... The highest and best use of the asset is in-use if the asset would provide maximum value to market participants principally through its use in combination with other assets as a group ... The highest and best use of an asset is in-exchange if the asset would provide maximum

value to market participants principally on a standalone basis ... [T]he fair value measurement considers the assumptions that market participants would use in pricing the asset'. This approach has similarities to recoverable amount as it appears in recoverable historical cost and value to the business (or recoverable replacement cost).<sup>19</sup>

Although the current fluidity in the concept of fair value makes it difficult to say exactly what it means, the position adopted here is that it is an exit value: sale value for assets and settlement value for liabilities. This seems to match how it is usually interpreted in practice, although the use of mid-market prices for traded securities and other assets for which there are active markets is a significant exception.

For many of the assets and liabilities in companies' accounts in the precise form and condition in which they exist at the balance sheet date, there are no active markets, so sale and settlement values are difficult to establish. For this reason, IFRS 3, *Business Combinations*, prescribes a number of alternative measurements that can be taken as fair value. These include:

- estimated value
- present value
- selling price less the costs of disposal, plus a reasonable profit allowance
- selling price less the sum of costs to complete and costs of disposal, plus a reasonable profit allowance
- current replacement cost
- depreciated replacement cost
- calculation by reference to an active market
- the amount that a third party would charge.

'Calculation by reference to an active market' can cover a wide range of different forms of calculation. Some of them may be models - such as the Black-Scholes option pricing model - in which prices from active markets provide one or more of the components in a possibly complex formula. This approach, marking to model, is common in the financial services sector. The credibility of such model-based valuations is higher where market participants use the same model to determine the prices they will offer or demand in actual transactions.

FAS 157 (paras 22-30) identifies a fair value hierarchy, which prioritises the inputs to fair value measurements.

- Level 1 inputs are 'quoted prices (unadjusted) in active markets for identical assets or liabilities'.
- Level 2 inputs are 'inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly'.
- Level 3 inputs are 'unobservable inputs for the asset or liability'. They 'reflect the reporting entity's own assumptions about the assumptions that market participants would use in pricing the asset or liability'.

Fair value implies the recognition of assets and liabilities that are unrecognised under historical cost. If an asset or a liability has a fair value, this in itself is an argument for its recognition. Fair value also implies recognition of gains as they arise rather than as they are realised. This avoids the problem, which arises under historical cost, of asset disposals being timed so as to smooth reported earnings. Fair value income is the increase in the fair value of a business's net assets during the accounting period.

The point is debatable, but arguably the principal difference in practice between fair value and realisable value is that fair value disregards the related costs of disposal (for assets) or settlement (for liabilities). This distinction is not immutable; IFRS 3, for example, requires inventories in acquisitions to be fair valued net of disposal costs and FRS 157 requires fair values to be measured net of transportation costs to or from the asset's (or liability's) principal (or most advantageous) market. But for the purposes of discussion here, fair value will be treated as a gross measurement.

### 3.4.2 FAIR VALUE: RELIABILITY

#### Areas of objectivity

Where fair values are taken from active markets, they are verifiable and objective.

#### Areas of subjectivity

Where fair values are not taken from active markets, they are estimates, made with more or less subjectivity, of what they would have been if there had been active markets. In practice, this problem has often been overcome by using forms of fair value measurement - present value, depreciated replacement cost and so on, as in IFRS 3 - that do not correspond to the defined sense of fair value. To the extent that these proxies are used, they carry the advantages and disadvantages of the particular measurement basis concerned. In terms of FAS 157's approach, fair value measurements become more subjective the more they depend on inputs from lower levels in the fair value hierarchy.

### 3.4.3 FAIR VALUE: RELEVANCE

#### Possible uses

Information prepared on a fair value basis might be more relevant for some purposes than information prepared on other bases. For example, where fair value shows current market prices, it may be of interest to various users.

- Investors and lenders will be able to see what could be realised (gross) on disposal of the business's separable assets. This is also a measure of the opportunity cost of holding the assets. This information may be particularly relevant where assets - investments and properties, for example - could be disposed of separately without affecting the underlying business.
- Where assets generate cash flows separately from the rest of the business, their fair value determined in an active market should provide the best available indication of the value of the probable risk-adjusted future cash flows from those assets. This information may be of interest to investors and creditors.

The CFA Institute, writing from the point of view of investment analysts, has argued that:

- 'Fair value information is the only information relevant for financial decision-making';
- 'The clearest measures of a company's wealth-generating or wealth-consuming patterns are changes in the fair values of [its] assets and obligations'; and
- 'Investors who rely on fair values for decision-making must expend considerable effort trying to restate to fair value all decision-relevant financial statement items that are measured at historical cost'. It would help them if the items were stated at fair value in the first place.<sup>20</sup>

**Criticism of relevance**

Except in certain areas of financial services, little use seems to be made of fair value for management purposes. This could be because, as argued by Ernst & Young<sup>21</sup> fair value measurements are made on the basis of a rejected alternative. They show the values that would have been realised had all assets been sold and all liabilities settled at the balance sheet date. However, the fact that an asset or a liability appears in the balance sheet indicates that the option to sell or settle it at that date was rejected. Why, therefore, would values that reflect a rejected alternative either be the most relevant to disclose or provide the most appropriate basis for measuring performance? This is an argument against the relevance of opportunity costs in measuring a business's income and financial position. The argument is perhaps less strong where an asset is held for sale. In such cases, the option to sell has been rejected only temporarily.

There is also the objection that assets sold jointly (i.e. as business units) usually achieve higher values than assets sold separately. For users interested in market values, therefore, fair values for separable assets seem unlikely to be very relevant. The higher values that could be obtained from sales of business units would be more relevant (unless the business units will have to be broken up). This criticism is met to some extent by the in-use approach in FAS 157.

Fair value is also likely to be volatile, and could therefore be regarded as misleading, where it is based on probable disposal values for fixed assets – as opposed to, e.g, depreciated replacement cost.

**PANEL 3.4: FAIR VALUE - SUMMARY OF KEY ARGUMENTS****RELIABILITY**

Reliable when based on active markets. Subjective where there are no reliable market values.

**RELEVANCE**

**For:** Shows sale values (gross) and therefore opportunity costs. Shows expected value of risk-adjusted future cash flows for some assets. Some financial analysts regard it as the only information relevant for financial decision-making.

**Against:** Shows measurements based on a rejected alternative. Can show asset values at sub-optimal level of aggregation.

**3.5 REALISABLE VALUE****3.5.1 HOW IT WORKS**

An asset's realisable value<sup>22</sup> is the amount for which it could be sold, and a liability's realisable value is the amount for which it could be settled. Realisable value measurements are often made on a net basis, and in this report realisable value will be considered in the sense of net realisable value; that is, net of selling costs (for assets) and grossed up for settlement costs (for liabilities). As the actual use of realisable value is limited, it is difficult to say exactly how it would be calculated in practice if it were applied to assets and liabilities generally.

The view could be taken that, in substance, realisable value and fair value are the same except that the former is usually measured net of the costs of realisation. If an attempt were made to apply realisable value generally, therefore, alternative measures would need to be found to produce the numbers in situations where there is no active market to provide them. This would presumably result in the same kind of list of proxies for realisable value as that developed for fair value in IFRS 3.

An alternative view of realisable value is that it should be measured on the basis of disposal in the ordinary course of business. For example, the IASB states that:

‘Net realisable value refers to the amount that an entity expects to realise from the sale of inventory in the ordinary course of business. Fair value reflects the amount for which the same inventory could be exchanged between knowledgeable and willing buyers and sellers in the marketplace. The former is an entity-specific value; the latter is not. Net realisable value for inventories may not equal fair value less costs to sell.’ (IAS 2, Inventories)

But this approach to realisable value is clearly limited to assets that would be disposed of in the ordinary course of business – such as inventories. It could not be applied sensibly to all of a business’s assets.

Another view of realisable value is that it reflects what could be received on a forced sale – if the business were liquidated, for example.

### **3.5.2 REALISABLE VALUE: RELIABILITY**

The characteristics of the realisable value basis depend on how one interprets it. To the extent that it is in substance the same as fair value, but net of realisation costs, its strengths and weaknesses are similar.

Where realisable value is measured on the basis of disposal in the ordinary course of business, sometimes its measurements would be more objective than fair value, sometimes less. For example, stock (or inventory) subject to a contract-for-sale or actually sold shortly after the balance sheet date could be measured objectively in circumstances where a hypothetical market price might be more difficult to determine. In other cases, the adjustments required for an ordinary course of business basis might be more subjective.

### **3.5.3 REALISABLE VALUE: RELEVANCE**

#### **Possible uses**

Information prepared on a realisable value basis might be more relevant for some purposes than information prepared on other bases. For example, where realisable value shows current market prices, net of realisation costs, it allows investors, lenders and regulators to see what could be realised (net) on disposal of the business’s separable assets. Some may see it as more useful than fair value because it adjusts for known entity-specific factors, such as contractual terms that would apply to the disposal of assets. Also, where realisable value shows what could be realised in a forced sale, it is particularly relevant where a business is not a going concern or is perhaps intended to have a limited life.

The argument for realisable value as a measure of opportunity cost is that a gross figure represents an amount that can never be wholly realised, because in practice there will always be relevant costs that will reduce the gain (or increase the loss) apparently sitting in the balance sheet waiting to be realised. The user of the accounts could therefore be misled as to the prospective value of realisations. Those who regard fair value, rather than realisable value, as a measurement of opportunity cost could be misled into overestimating the likely benefits of selling assets rather than using them within the business (the calculations for which will be net of relevant costs).

#### **Criticism of relevance**

The same objections to realisable value’s relevance apply as for fair value, except as regards the possible superiority of net measurements and its application to businesses that are either not expected or not intended to be sustained.

**PANEL 3.5: REALISABLE VALUE – SUMMARY OF KEY ARGUMENTS****RELIABILITY**

Reliable when based on active markets or actual realisations. Subjective where there are no reliable market values or actual realisations.

**RELEVANCE**

**For:** Shows sales values (net) and therefore opportunity costs. Shows expected value of risk-adjusted future cash flows for some assets.

**Against:** Shows measurement based on a rejected alternative. Can show asset values at sub-optimal level of aggregation.

**3.6 VALUE IN USE****3.6.1 HOW IT WORKS**

The value in use<sup>23</sup> of an asset or liability is the discounted value of the future cash flows attributable to it. However, as cash flows are generated by businesses, or by units within businesses, rather than by individual assets, value in use is a basis of valuation applicable to businesses or business units rather than to separable assets and liabilities.

Value in use implies recognition of gains as they arise rather than as they are realised, but they are gains in the value of the business unit, rather than gains on transactions or in the values of separable net assets.

Where value in use is applied to a business or to a cash-generating unit, it implicitly incorporates in the valuation goodwill (whether acquired or internally generated) and any other unrecognised assets or liabilities (i.e, that would be unrecognised on other measurement bases).

Where it is attempted to apply value in use to individual assets or liabilities as traditionally conceived (for example, in recoverable amount tests), the valuation inevitably also incorporates goodwill and other intangibles in the valuation, as there is no way of dividing forecast cash flows into amounts that are attributable to separable recognised net assets, amounts attributable to separable but unrecognised assets, and amounts that are attributable to something else (goodwill).

**3.6.2 VALUE IN USE: RELIABILITY****Areas of objectivity**

As value in use is based on forecasts of future cash flows, it is only objective to the extent that the cash flows it is forecasting have already occurred (ie, between the balance sheet date and the date of preparation of the forecast) or are contractual commitments to which no doubt attaches.

**Areas of subjectivity**

Because they are based on predictions, most value in use calculations are subjective, and the longer the period covered by the forecast, the more subjective they become. The choice of discount rate is also subjective.

### 3.6.3 VALUE IN USE: RELEVANCE

#### Possible uses

Information prepared on a value in use basis might be more relevant for some purposes than information prepared on other bases. For example, value in use information should be relevant to all those who have an interest in the present value of the business's future cash flows: most obviously, investors, creditors, and employees. On certain assumptions, it provides a valuation of the business, and it is used for this purpose by investment analysts and private equity investors. Indeed, being based on future cash flows, value in use must be relevant to what standard-setters state to be the main purpose of financial reporting, assisting the forecasting of future cash flows.

Value in use also matches the *economist's concept of income*. The economist's concept of income is that 'a man's income [is] the maximum value which he can consume during a week, and still expect to be as well off at the end of the week as he was at the beginning.'<sup>24</sup> To measure income it therefore becomes necessary to measure well-offness, which it is usually considered means the present value of expected future income.

#### Criticism of relevance

Value in use collapses forecast future cash flows into a value at a date in the recent past (the balance sheet date) by means of discounting. Profit or loss on this basis therefore becomes a measure of the change in expectations of the future between two dates in the past, and some users question whether this is a valid measure of actual past performance. This point reflects a more wide-ranging criticism of the economist's concept of income as a measure of business performance.

It can also be argued that the usefulness of value in use information is limited unless there is full disclosure of the underlying forecasts, assumptions and sensitivities. This criticism could be met by making the disclosures, but there may then be issues as to their volume and complexity.

Some critics also contend that valuation of the business is best done by the market, rather than by the company's managers in their financial reporting.<sup>25</sup> This is not a criticism of value in use as such, but a point about who is in the best position to calculate it and therefore its appropriateness for the purposes of financial reporting.

#### PANEL 3.6: VALUE IN USE - SUMMARY OF KEY ARGUMENTS

##### RELIABILITY

Subjective because based on predictions.

##### RELEVANCE

**For:** Shows present value of expected future cash flows and economist's measure of income. Relevant to standard-setters' stated objective.

**Against:** Measures changes in expectations rather than actual performance. The market should be left to value the business.

### 3.7 MEASUREMENT COSTS

The costs of financial reporting measurement are not just the routine, recurring costs that an entity incurs directly. They also include one-off costs in setting up and documenting the relevant methods and systems and in training staff, and indirect expenses such as the costs of audit.

Each basis of measurement has its advantages, and each may therefore be seen by a business's managers as appropriate for its internal purposes – that is, for management information. Where a measurement basis is used for internal reporting, the incremental costs of using it for financial reporting (that is, for reporting to outsiders) will clearly be much less than would otherwise be the case.

A good deal of historical cost information is prepared for management purposes, as every business needs to record the actual costs it incurs and its realised income, even if it then goes on to build on that by using information prepared on other bases. Usually, therefore, the additional preparation costs of historical cost financial reporting information are relatively low.

Value to the business is typically more costly than historical cost, as work has to be done to ascertain replacement costs, and to adjust for differences in asset lives and service potential. At a time of rising prices, impairment tests are also likely to be more critical than they would be for historical cost, and so have to be performed more thoroughly. However, as with any basis, if the business is using value to the business for management purposes, most of these costs would be incurred anyway.

Whether fair value is relatively expensive or inexpensive depends largely on how far measurements can be taken from active markets and whether the business uses fair value information for management purposes. Where information can be taken from active markets and management is using fair values anyway, fair value for financial reporting should be relatively cheap. Where these conditions do not apply, fair value will probably be more expensive than historical cost. The same points apply to realisable value, in so far as it resembles fair value.

Predicting cash flows for value in use is probably simpler than making the detailed item-by-item calculations required for other bases, e.g. historical cost, because it has to be done at the level of the business entity (or cash-generating unit), rather than asset by asset and liability by liability. Some businesses prepare value in use information for management purposes. Where they do not, value in use measurements for financial reporting would obviously add to costs.

### 3.8 SUMMARY OF MEASUREMENT BASES

Panel 3.7 summarises the key points for and against the different bases. And the following list summarises the purposes for which different bases might in general be preferred:

- Historical cost provides a prudent measure of past performance and measures net assets based on actual costs incurred.
- Value to the business shows the costs of entry (or replacement) and income after maintaining operating capability.
- Fair value shows the value of net assets if sold separately and income based on that.
- Realisable value shows the value of net assets if sold separately (net of costs) and income based on that.
- Value in use shows the present value of future cash flows and an economist's measure of income.

## PANEL 3.7: MEASUREMENT BASES - SUMMARY OF KEY ARGUMENTS

	RELIABILITY	RELEVANCE
<b>HISTORICAL COST</b>	Reliable when based on actual transactions. Subjective when based on predictions and allocations.	<b>For:</b> Matches costs with realised income. For most companies, aligned to management information. <b>Against:</b> Based on out-of-date measurements. Ignores unrealised gains. Measures some key assets and liabilities at zero.
<b>VALUE TO THE BUSINESS</b>	Reliable when there are markets for comparable replacement assets. Subjective when technologies and markets change, and when based on predictions and allocations.	<b>For:</b> Shows costs of entry to new entrants. Shows whether operating capability is being maintained. <b>Against:</b> Maintenance of operating capability not the priority for investors. New entrants' perspective not the most relevant for existing investors.
<b>FAIR VALUE</b>	Reliable when based on active markets. Subjective where there are no reliable market values.	<b>For:</b> Shows sale values (gross) and therefore opportunity costs. Shows expected value of risk-adjusted future cash flows for some assets. Some financial analysts regard it as the only information relevant for financial decision-making. <b>Against:</b> Shows measurements based on a rejected alternative. Can show asset values at sub-optimal level of aggregation.
<b>RELIABLE VALUE</b>	Reliable when based on active markets or actual realisations. Subjective where there are no reliable market values or actual realisations.	<b>For:</b> Shows sale values (net) and therefore opportunity costs. Shows expected value of risk-adjusted future cash flows for some assets. <b>Against:</b> Shows measurements based on a rejected alternative. Can show asset values at sub-optimal level of aggregation.
<b>VALUE IN USE</b>	Subjective because based on predictions.	<b>For:</b> Shows present value of expected future cash flows and economist's measure of income. Relevant to standard-setters' stated objective. <b>Against:</b> Measures changes in expectations rather than actual performance. The market should be left to value the business.

## ***4. Public policy considerations***

### **4.1 INTERNAL AND EXTERNAL REPORTING**

The measurement of performance and financial position – central questions in financial reporting – are also important to managers in running a business. In choosing an appropriate measurement basis or bases, therefore, managers face similar underlying questions to those faced in financial reporting. But the costs and benefits of internal reporting are not the same as those of external reporting, and it might be reasonable – considering the two issues in isolation from each other – to conclude that different measurement bases are appropriate for the two kinds of information.

Why do the costs and benefits of financial reporting differ from those of internal reporting?

- The users of the information are different. The users of financial reporting include shareholders (actual and potential), investment analysts, lenders, credit rating agencies, tax authorities, regulators, employees, suppliers, customers, and the media. Because the users of financial reporting are different from those of internal reporting, they may have different information preferences – they may differ from management on what they regard as relevant, for example.
- The users of financial reporting information are diverse and they therefore have diverse preferences. So financial reporting may have to be a compromise, meeting some users' preferences, but not all of them.
- The users of financial reporting information do not have access to the same information as management. They may therefore have doubts as to the reliability of the information reported to them, and may (or may not) prefer measurements that can be checked by third parties or that keep subjectivity to a minimum.
- Financial reporting may also produce benefits for the company – such as helping to raise capital or loan finance – that could justify more expensive measurements, or procedures to ensure the reliability of measurements, than would be appropriate for purely internal reporting.

If, considering internal and external reporting measurements in isolation, it is concluded that different measurement bases are appropriate, a further question then arises as to whether, or to what extent, it makes sense to have two separate systems of measurement running in parallel – one for internal purposes and one for external. There are three key issues here.

- One is whether the costs of running two separate measurement systems outweigh the benefits.
- Another is how far managers can realistically disregard externally reported measurements in running the business. For a privately owned company, it may be possible for its managers to treat the financial reporting numbers as of little or no importance. But for a listed company it is very difficult for managers in running the business to pay no attention to the effects of their decisions on what will be reported externally – unless the financial reporting numbers have no credibility in the market.
- There are also behavioural issues where managers do not regard external reporting measurement requirements as sensible. Accounting measurements involve so many judgements that the quality of the information reported is bound to some extent to reflect the commitment with which those responsible for preparing it approach the task.

The relationship between internal and external reporting is therefore a complex one. It is right in principle that those responsible for financial reporting requirements should take the view that the information used by a business internally is no concern of theirs. It is up to a business's owners and managers to decide such matters. But if there are requirements for financial reporting measurement bases that impose additional costs, it may lead to managers changing internal measurement bases (in a sub-optimal way) in order to save costs. And, for businesses where externally reported numbers are regarded as significant, managers are almost bound to treat financial reporting information in a similar way to internal information. They may therefore consider, in some circumstances, that financial reporting requirements that produce misleading information push them into making perverse management decisions.

## **4.2 MEASUREMENT AS A PUBLIC POLICY ISSUE**

If measurement issues were purely a matter for an entity's internal reporting, they would probably not be regarded as an appropriate subject for regulation. But external reporting measurements serve a wide variety of purposes that are generally considered to be matters of public interest and which are therefore legitimate concerns of public policy. Among other things, they promote:

- fairness and efficiency in the tax system;
- the efficient allocation of capital;
- the effective exercise of business ownership, including supervision of managers' stewardship of the business; and
- the prevention of fraud.

Regulation can help financial reporting to achieve these and other public policy goals, but regulation is only one way of promoting public policy objectives, and not necessarily the most effective.<sup>26</sup> A broad framework for approaching public policy issues (the Information for Better Markets Framework<sup>27</sup>) is set out in Appendix 2. This provides a reminder that non-mandatory solutions are often effective in achieving public policy goals and that techniques such as rating and benchmarking, voluntary codes and stakeholder engagement, for example, may also be relevant to achieving the desired outcomes of financial reporting.

If financial reporting issues are viewed from a public policy perspective, one important implication is that they cannot be viewed as matters that are of interest just to users and preparers of financial reporting information. Financial reporting has wider implications for social welfare and may impose social costs in addition to the costs borne directly by its preparers and users. It may also deliver social benefits in addition to the benefits accruing to preparers and owners. The question of financial reporting's contribution to financial stability is especially controversial.

## **4.3 THE INSTITUTIONAL CONTEXT**

The preceding section offers some broad generalisations about public policy objectives served by financial reporting. How far such generalisations are true will depend in any particular case on the institutional context. The purposes of financial reporting are not preordained, but depend on the institutional setting within which accounts are prepared. In some circumstances, the demands of the tax system may be the predominant consideration; in others, the needs of owners. In some contexts promoting the efficiency of the stock market is a significant consideration; in others, it is not. Often it will be appropriate to think of financial reporting primarily as part of a system of corporate governance, but corporate governance structures vary from one economy to another and, within economies, for different types of company.

The institutional context is fundamental not only in determining the purposes of financial reporting, but in making judgements on the relevance and reliability of particular measurement bases, and on the relative weights to be accorded to different qualities of measurement information. For example:

- If using financial reporting information to help predict future cash flows is unimportant to key users in a given institutional context, measurement bases that purport to assist such predictions will be less relevant.
- Measurements based on market prices will be more reliable where markets are more developed.
- Where a division between the owners and managers of businesses is usual, more emphasis may be placed on the importance of reliability.

Supporting institutional structures for the auditing of financial reporting measurements and the enforcement of relevant requirements on measurement and auditing will also affect the reliability of information, and its costs and benefits.

#### 4.4 THE ROLE OF REGULATION

Different measurement bases have different potential uses, different costs, and varying degrees of relevance and reliability for different assets and liabilities. If financial reporting were entirely unregulated, the owners of businesses would choose for themselves the most appropriate basis (or bases) of measurement for a business to use or leave the decision to managers. In doing so, the owners would be able to consider their own particular preferences, the costs that would be incurred, and the nature of the business.

Other things being equal, owners who made good decisions about what information to require would prosper; owners who made poor decisions would lose their money. Where the information was also aimed at other audiences, other things being equal, businesses that took good decisions would be rewarded by better relationships with the users of their financial statements. Businesses that took poor decisions would be punished by poorer relationships. Overall, decisions on financial reporting measurement would simply be one among the myriad of factors that contributed to an investor's or a business's success or failure.

Even in an entirely unregulated financial reporting environment, it would be reasonable to expect similarities in measurement practices to emerge. For one thing, competitive pressures would tend to eliminate businesses and investors that used or relied on less effective measurement practices. Businesses and investors would imitate the measurement practices of the more successful.

And even in the absence of competitive pressures, it helps if the people preparing financial reporting information and the people using it speak the same language. It would not do to have a world where every business developed its own unique approach to measurement; the results would be unintelligible and unusable.

There would also be other pressures for convergence. Financial reporting plays a role in various types of contract, and conventions would emerge as to how figures should be calculated for these purposes. Users would be able to put pressure on preparers if they thought it unhelpful for a business to prepare its information differently from other businesses. Questions might arise from time to time as to whether directors had discharged their responsibilities properly, and the courts would want to know which practices were regarded as acceptable and which as unacceptable. All these forces would tend to move financial reporting measurement in the direction of common practices, but they would not achieve uniformity.

Why might it be appropriate to compel uniformity? The answer varies from one jurisdiction to another. In some jurisdictions, uniformity is driven by tax authorities so as to ensure fairness in the taxation of profits. In others, the authorities regulate financial reporting so as to promote the integrity and efficiency of capital markets.

A key issue here is the problem of adverse selection. When there is adverse selection, it is rational for companies with something to hide to raise money from the market, and irrational for those with nothing to hide to do so - because the market assumes they must have something to hide. At the extreme, adverse selection leads to the conclusion that the only companies likely to be selected to raise capital on the market are those it would be foolish to invest in.

Adverse selection provides a reason for financial reporting regulation - to ensure that businesses disclose good and bad news and that outsiders can be confident that this is the case. The result should be a lower cost of capital for business generally (as investors have greater confidence) and a more rational allocation of capital among companies as the perverse incentives for bad news companies to come to market and good news companies to stay away from it are ironed out.

The problem of adverse selection does not in itself show conclusively that regulation of financial reporting is justified because:

- Good news companies may be able to develop ways of convincingly signalling their status.
- Outsiders can use techniques, such as only investing in situations where they are able to require information, that guard against adverse selection.
- The costs of regulation may exceed the benefits.

If capital markets are considered in the widest sense, the need to maintain their integrity and efficiency provides a rationale for regulating the financial reporting of even the smallest business as is the case under EU company law. But in other jurisdictions such as the US, it is principally the capital markets for publicly listed companies that are considered relevant in this context.

There is a risk, where financial reporting is regulated, that it will be less responsive to the needs of owners and other stakeholders than it might otherwise be. This may be because the needs of owners and other stakeholders are not the regulator's overriding priority, because they are not uniform (and therefore do not fit well into a regulatory process), or because the regulators have their own ideas of what information owners and other stakeholders ought to want.

Once a decision to regulate financial reporting has been taken, this still leaves a range of options as to how far it is to be regulated. Disclosure and publication might be regulated, but not measurement. Or some measurements might be regulated, but not all of them. Or choices might be allowed between specified bases. The next chapter considers how regulatory decisions on measurement should be approached.

### PANEL 4.1: SUMMARY OF THE ARGUMENT

- Internal reporting and external (financial) reporting face the same underlying questions in choosing an appropriate measurement basis or bases, but involve different costs and benefits. The relationship between internal and external reporting is a complex one.
- Financial reporting measurement is a matter of public policy, and it should be approached in the same way as other public policy issues.
- The institutional context determines the purposes of financial reporting measurements, and also affects the costs and benefits of particular measurement bases.
- The regulation of measurement in financial reporting arises from the wish to secure the benefits of greater uniformity and to combat the risks of adverse selection.
- Even where financial reporting is regulated, questions remain as to how far it is appropriate to impose uniformity in measurement.

## ***5. Regulating measurement***

### **5.1 GOOD REGULATORY PRACTICE**

It seems reasonable to start from the assumption that the regulation of measurement in financial reporting should be subject to the same principles as other forms of regulation. There is a growing body of work on the principles of regulation, including:

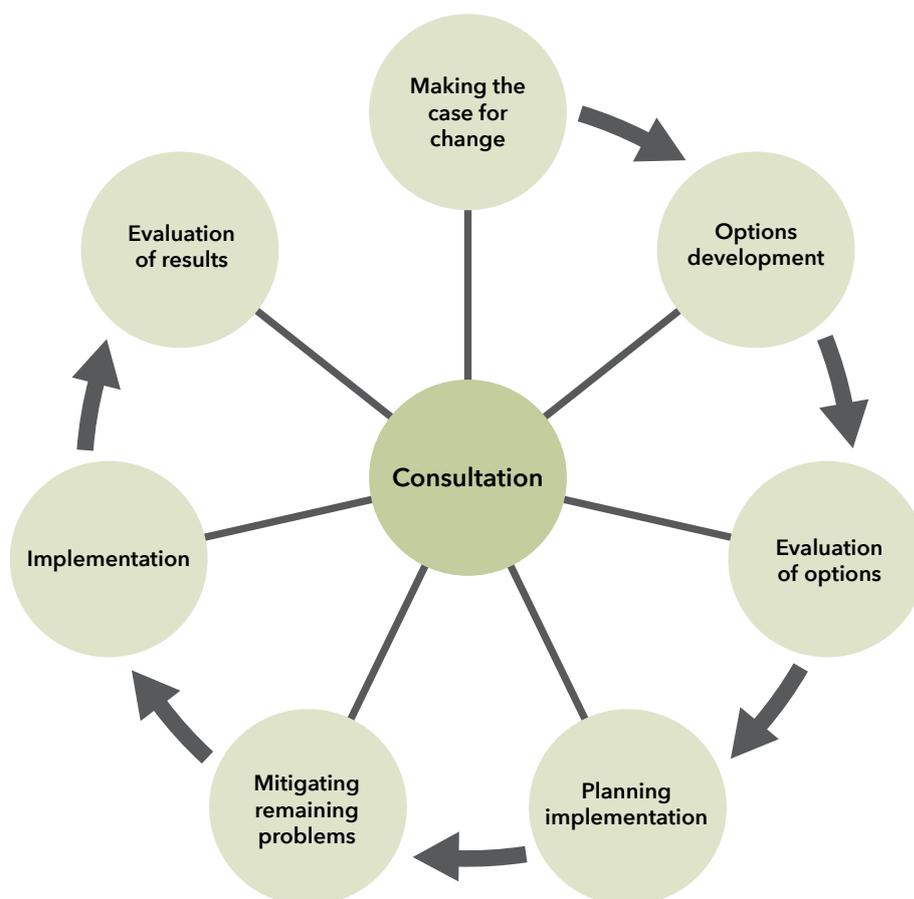
- the *OECD Guiding Principles for Regulatory Quality and Performance*;
- the UK Better Regulation Task Force's five principles of good regulation;
- the European Commission's *Implementing the Community Lisbon Programme: A Strategy for the Simplification of the Regulatory Environment*; and
- developing practices, in a number of countries, on regulatory impact assessments.

Emerging themes from this literature summarised by ICAEW are that any regulatory initiative should involve the following elements:

- Consultation
- Making the case for change
- Options development
- Evaluation of options
- Planning implementation
- Mitigating remaining problems
- Implementation
- Evaluation of results.

The relationships between these elements in a model of good regulatory practice are shown in Figure 5.1. below.

**FIGURE 5.1: A MODEL OF GOOD REGULATORY PRACTICE**



'Making the case for change' puts the onus on showing that there is a problem that needs to be solved. What would this mean in the context of financial reporting measurement? As summarised in Figure 1.1 changes in measurement practices result largely from perceived problems with existing financial reporting measures that are seen as failing to reflect economic activity appropriately or as promoting unwelcome economic activities. There may be a prima facie case for change where:

- people are confronted with a measurement problem and do not know how to deal with it;
- worthwhile information that could be provided is not;
- information that is being provided is not worthwhile or even has negative effects (because, for example, it is misleading).

Another key feature is that the 'Evaluation of options' stage should include the option to do nothing. Present practices may not be the best possible in an ideal world, but they have usually evolved for a reason, and once all the costs of potential changes have been taken into account (including the costs of making the change) and their likely benefits considered, making changes may prove to be less sensible than leaving things as they are.

An essential feature of the model is that, throughout the process, regulators should consult interested parties, including regulated businesses. In practice, it will usually be convenient for formal consultation exercises to occur at strategic points in the process including 'making the case for change', rather than at each stage of the process for every policy proposal. One of the indicators of successful consultation is that the 'evaluation of results' should not entail making a case for further change. In the context of financial reporting measurement, users of financial reports are key consultees and their role is discussed further in Section 5.2.

The model is also expressed in general terms and does not specify what criteria would be appropriate in making a case for change, in evaluating options, or in evaluating implementation. These will vary for different types of regulation. Criteria for decisions on health and safety, for example, would not be the same as those for determining a minimum wage or for ensuring the solvency of banks. Section 5.3 below considers what criteria would be appropriate for decisions on measurement in financial reporting.

## 5.2 USERS OF FINANCIAL REPORTING INFORMATION

Although a public policy perspective requires that attention should not be restricted to the users of information in assessing its benefits, users must still be an important focus of attention. But various problems arise in consulting with users of financial reporting information and taking their needs into account.

- The first issue is to identify who are the users of financial reporting information and what use they make of it.
- There is a question as to how far different users' information needs overlap. According to the IASB's Framework for the *Preparation and Presentation of Financial Statements*, 'the provision of financial statements that meet [investors'] needs will also meet most of the needs of other users that financial statements can satisfy.' But much of the literature on financial reporting assumes that different measurement bases provide information that might be useful for different, and not necessarily overlapping, purposes.<sup>28</sup>
- It cannot be taken for granted that all users of the same type, such as investors, have the same information and measurement preferences.
- FASB's Statement of Financial Accounting Concepts 1, *Objectives of Financial Reporting by Business Enterprises*, states that financial reporting's objectives 'stem primarily from the informational needs of external users who lack the authority to prescribe the information they want from an enterprise'. Who such users are may well vary from entity to entity and from one jurisdiction to another. For example, a dominant shareholder in a company will be able to prescribe information where smaller shareholders would not. And in the UK the powers of shareholders in a company acting collectively would allow them to prescribe information, which they may not be able to do in other jurisdictions.

All of these are factual issues, which should be capable of being addressed through research, and suggestions for relevant research projects are set out in Chapter 6. The benefits of research into these issues would be considerable if it helped standard-setters to overcome the practical problems that they currently face in incorporating users' views into their deliberations.

### 5.3 CRITERIA FOR EVALUATING FINANCIAL REPORTING INFORMATION

There is varied literature on the desirable characteristics of information. Much of it applies to information generally, but some of it has been developed by standard-setters in the specific context of financial reporting. In a report drawing on this literature, ICAEW has argued that:<sup>29</sup>

- information should always be fit for purpose and cost-effective; and
- in deciding whether information meets these tests, regard should be had to nine key attributes of good information.

These attributes, set out in the list below, are considered in Appendix 1 with particular reference to financial reporting measurements. Information should be:

1. **relevant**
2. **accurate**
3. **reliable**
4. **comparable**
5. **understandable**
6. **concise**
7. **timely**
8. **fairly presented and should**
9. **avoid perverse effects.**

These characteristics provide a checklist in discussing financial reporting issues. People typically support or oppose particular proposals by saying that they are relevant or reliable or irrelevant or unreliable, or by reference to some other desirable characteristic.

Chapter 3 of this report focused on relevance and reliability. But all these characteristics are secondary in the sense that they merely describe factors that would contribute to the benefits (or the costs) that figure in a cost-effectiveness test or in assessing fitness for purpose. They are relevant in decisions about measurement bases to the extent that they describe qualitative benefits that would figure in such tests in the absence of (or in addition to) any quantifiable measures of benefits. If the accompanying costs (which would include perverse effects) exceed the benefits, then the proposal would not pass the cost-effectiveness test. As both costs and benefits can be difficult or impossible to quantify, a cost-effectiveness test may well be largely qualitative and fitness for purpose is an inherently qualitative concept.

The relative contributions of the desirable characteristics are likely to vary from entity to entity, depending on the nature of its business, its particular mixture of assets and liabilities, its size, and its ownership structure. Conceivably, the cost-benefit equation could work out differently for every entity, but it can be expected to produce similar results for similarly situated entities. However, the likelihood that there will be at least some differences between entities helps explain why, if financial reporting were unregulated, total uniformity of measurement practices would not emerge spontaneously. There would always be good reasons why entities would make different choices, even when they are perfectly informed as to the consequences of those choices.

One of the problems for a financial reporting standard-setter is how far to impose uniformity in the belief that this will be more cost-effective overall, rather than allowing different solutions that recognise that cost-benefit tests will work out differently for:

- different items;
- different types of entity;
- different ownership structures; and
- different sizes of entity.

This question will be considered next.

#### PANEL 5.1: SUMMARY OF THE ARGUMENT (SECTIONS 5.1 – 5.3)

- The regulation of measurement in financial reporting should be subject to the same principles as other forms of regulation.
- There are important factual questions as to who are the users of financial reporting information, how far their needs overlap, and how far they are in a position to prescribe the information they need. The benefits of research into these issues could be considerable.
- Decisions on proposed measurement requirements should be made in accordance with cost-effectiveness and fitness for purpose tests that take into account the wider implications of financial reporting, and reflect the desirable characteristics of financial reporting information.

### 5.4 THE CHALLENGE OF CONSISTENCY

The starting point for any process of regulatory change is the need to make a case for change by showing that there is a problem that needs to be solved. Whilst it is possible to identify a number of individual problem areas related to measurement, the big issues of measurement arise at a higher level. As was highlighted in Figure 1.2, there is concern about a lack of consistency in how items are measured within the accounts of a single entity and about there being too much consistency in measurement requirements across different types of entity. We look at the issues involved in the remainder of Section 5.4, recognising that entities differ principally in terms of their industry, their ownership and governance structure (including their legal form), and their size.

#### 5.4.1 CONSISTENCY WITHIN THE ACCOUNTS

At present, IFRS and other collections of financial reporting practices involve the measurement of different items within accounts on different bases. There is a case for eliminating these inconsistencies so that balance sheet and income statement (or profit and loss account) totals reflect items measured on a single basis, and therefore have a clearer meaning. However, the achievement of a consistent measurement basis within the accounts should not be an overriding objective. There are a number of reasons for this view.

- There are some items for which one basis or another seems to have particular strengths or weaknesses. For example, fair value seems to have particular weaknesses where there are no active markets; historical cost seems to be particularly weak for items (eg, certain financial instruments) that have a historical cost of zero. The use of just one measurement basis therefore imposes a one-club strategy on financial reporting, producing some item measurements that are useful and others that are much less so.

- The choice of a single measurement basis is likely to achieve less consistency in substance than may be immediately obvious. The blanket use of a single measurement basis could lead to increased variability and inconsistency, particularly in the reliability, of measurements. The allegation that using more than one measurement basis leads to 'mixing apples and pears' can be countered by saying that the use of a single basis would mean mixing 'good and bad apples' and making the whole barrel bad.
- The difficulty of achieving consistency can be further illustrated through the example of fair value. Because the range of assets and liabilities for which there are active markets is limited, a range of expedients tends to be used to estimate what fair value would have been if there had been an active market. These include value in use, replacement cost, realisable value and even historical cost (on the argument that, in the absence of any other evidence, what you paid for something, especially if you bought it recently, may be the best indication available of what it is worth). Similar patches and workarounds tend to evolve for any measurement basis the more widely it is applied in practice.
- Although lack of consistency in the measurement basis within accounts might be expected to be a problem, many users seem content to employ information prepared on mixed bases, and find it useful. Possibly they use it in a pragmatic way, aware that there are trade-offs between relevance and reliability and other qualities, without seeking to attach any purity of meaning to the numbers.

These arguments are not intended to override empirical evidence to the contrary. If examination of the cost-effectiveness of different approaches to measurement shows that consistency of bases within the accounts is the most sensible approach, then it should be accepted and enforced. But the working hypothesis here is that on the evidence available to date, a mixed approach to measurement should not be ruled out.

It is also possible that the cost-benefit equation for how particular assets should be measured might work out differently in different locations. For example, some stock exchanges provide more efficient (and therefore more reliable) markets than others; some property markets are more liquid than others; and so on. So fair values (and realisable values) will vary in reliability from location to location for different types of asset. It is therefore possible that it would make sense to measure a particular type of asset (or liability) in different ways depending on where the asset (or liability) is located.

### 5.4.2 CONSISTENCY ACROSS DIFFERENT INDUSTRIES

Although industry regulators sometimes impose measurement requirements that are unique to the type of business they regulate, the tendency among standard-setter with wider responsibilities is to avoid special measurement requirements for particular industries. The rationale for this stance is that, if different measurement approaches make sense for different industries, it should be because there are assets or liabilities or activities that are peculiar to them. If a particular measurement basis is appropriate, therefore, it should be because it is appropriate to the asset or liability or activity concerned, regardless of the industry in which it is found. For example, if separate financial reporting standards are appropriate for insurance providers, it would be because providing insurance is an activity with distinct characteristics (or distinct forms of asset or liability) that need to be accounted for differently from other activities (or differently from other forms of asset or liability).

Nevertheless, different types of business (e.g, insurers, banks) may have different types of users for their financial reporting information. If they do, the cost-benefit equation for preparing certain information will vary from one type of business to another. Whether this is in fact the case should be a purely empirical matter.

### 5.4.3 CONSISTENCY ACROSS DIFFERENT OWNERSHIP AND GOVERNANCE STRUCTURES

There are strong arguments against allowing different measurement bases according to an entity's ownership structure, e.g, according to whether it is a publicly listed company or a privately owned one.

- To many people, it seems obvious that the figure a company reports for its profit or loss (or for its net assets) ought to be the same no matter who owns it.
- If the differences in how listed and unlisted companies measure their profits are extensive, preparers and users of accounts may have to specialise in understanding one basis or another. It will be more difficult for people to transfer their skills between listed and unlisted companies or to understand fully both types of accounts.
- Again, if the differences are extensive, they could constitute a barrier to entry for unlisted companies that wish to become listed. They will not only have to learn a new basis of measurement, but will also have to restate previous years' figures in order to provide a comparable track record.

These arguments certainly carry weight, but the following considerations are also relevant:

- If there is no single right way of measuring profit, it may be reasonable for companies with different ownership structures to adopt different measurement conventions.
- If different classes of company adopted different measurement practices, skills probably would indeed become more specialised, and therefore less transferable. While this is unfortunate, the question is whether this cost outweighs the disadvantages of uniformity, for example where unlisted companies apply listed company measurement practices that are not cost-effective for them or listed companies apply unlisted company measurement practices that are sub-optimal for them.
- Differences in measurement practices would indeed impose a barrier to companies that wish to make the transition from unlisted to listed or vice versa. It is a matter for empirical investigation how serious that barrier would be. And again it is a question of whether the cost of this barrier to the small proportion of companies that in any year wishes to make the transition outweighs the potential disadvantages of uniformity.

The position taken here, therefore - and again it is a working hypothesis - is that it may be appropriate, in deciding on measurement requirements, to distinguish between different classes of company in accordance with their ownership structures. The basis for this position is that the cost-benefit equation may work out differently for different ownership structures, partly because of differences in the principal-agent relationship.

Where the owners of a company are not its managers, the managers act as agents for the owners. The problem, as with all principal-agent relationships, is how to ensure that the agents act in the owners' interests rather than their own. In this situation, it is worthwhile from the owners' point of view that some of the company's resources should be spent on preparing financial reporting (and other) information that allows them to monitor their agents' performance, i.e, their stewardship of the business. Where the company's owners and managers are the same, this expense is not on the face of it worthwhile. More expensive measurement information may therefore be justified where companies are not owner-managed.

### 5.4.4 CONSISTENCY ACROSS DIFFERENT SIZES OF ENTITY

The arguments in relation to size are similar to those for different ownership and governance structures. The smaller an entity, the less likely it is that relatively expensive measurement practices will be cost-effective. Similarly, the more highly valued an entity is, the more likely it is that relatively expensive measurement information will be cost-effective. As with ownership, there are strong arguments that size should not affect measurement, but the working hypothesis proposed here is that it may be appropriate, in setting measurement requirements, to distinguish between different sizes of entity.

It may be appropriate in practice to consider arguments of size and ownership structure together. For example, if distinctions are drawn between one class of company and another for measurement purposes, it could make sense to distinguish between, eg, large, publicly listed companies and others, or between small, privately-owned companies and others.

### **5.4.5 ARGUMENTS FOR UNIFORMITY**

It has been argued above that cost-effectiveness tests for measurement proposals might justify the retention of different measurement bases for different items, and greater diversity of measurement bases for entities based on their industry, ownership and governance structure and size. This approach could in theory lead to an overall outcome that is complex and confusing, with numerous differences in measurement practices for different items and different entities (although, for the reasons given earlier, even in an unregulated environment uniformities of measurement practice would be expected to emerge).

On pragmatic grounds, there is a case for more uniformity than decisions made on the basis of a series of discrete cost-effectiveness tests might lead to. It is therefore legitimate to take into account the consequences for the understandability and usefulness of measurement practices as a whole of decisions that relate to discrete areas of measurement or particular categories of entity. This does not necessarily mean that uniformity is, after all, the best solution for measurement questions, but it does mean that the implications for the broader picture of allowing measurement differences have to be considered.

The line of argument just set out may be supported by the view sometimes expressed that financial reporting should be seen primarily as a sort of language – a means of communication. Language depends on people knowing what words mean and how other people are using them, which argues for some uniformity of meaning and usage. This is a metaphor that can be interpreted in more than one way – as language, or at any rate the English language, is not regulated, constantly evolves in an uncoordinated way, and yet manages to retain sufficient stability and commonality that people can understand one another.

Some users attach a high value to uniformity among companies' reporting practices. For example, where a user's business (e.g, a credit rating agency) depends on an assessment or scoring model that automatically processes information drawn from accounts, it would reduce the efficiency and effectiveness of the model, and increase the need for case-by-case judgements, if different businesses prepared their information in different ways.

### **5.4.6 AN INHERENTLY UNSTABLE PROCESS?**

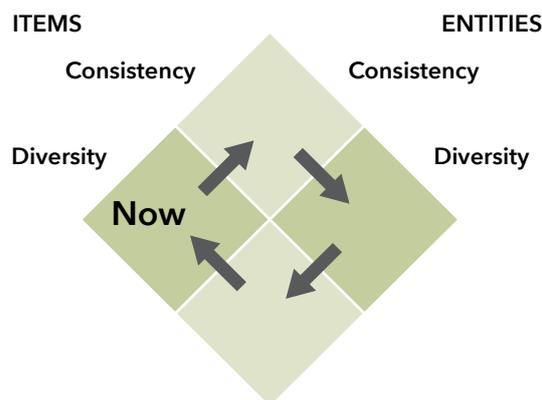
There is no clearly decisive case for either consistency or diversity in measurement practices, and so it is possible that the future evolution of measurement practices may follow an unstable path. Commentators tend to focus on the known disadvantages of the current position (whatever it happens to be at the time) and on the supposed benefits of change.

A circular process could therefore emerge as discontent with the current position produces a perpetual movement towards something expected to be better. However this may prove to be not quite satisfactory when actually experienced. Such a process can be visualised by adapting Figure 1.2.

**FIGURE 5.2: POTENTIAL INSTABILITY IN BASES OF MEASUREMENT**

**PANEL 5.2: SUMMARY OF THE ARGUMENT (SECTION 5.4)**

- The following working hypotheses have been adopted. It may be appropriate, in deciding on measurement requirements:
  - to adopt a mixed approach to measurement for different items in accounts; and
  - to distinguish between different classes of entity in accordance with their industry, ownership and governance structure, and size.
- But the desirability of such differences needs to be weighed against the arguments for keeping differences to a minimum.



The current position is shown in the left quadrant: measurement practices differ from item to item in the accounts, but are broadly consistent across entities. Pressure for a more consistent approach to measurement might result in a move to the top quadrant, so that every item in the accounts is measured on a uniform basis. But this position could well prove to be untenable. Consistent adoption of, say, fair value might be tolerable for listed companies, but could provoke strong opposition from private companies. The result might be a move to the right quadrant, with different measurement bases being used by different types of entity. For example, historical cost might be used by small unlisted companies. However, if fair value proved to be less successful even for listed companies than had been anticipated, this might lead to a further breakdown in uniformity as alternative measurement bases are reintroduced for certain items for listed companies. This would lead to the bottom quadrant. If this produces a situation in which the diversity of practice is thought to be intolerable, pressures for greater consistency might lead back to the left quadrant and history might start to repeat itself. Such instability in reporting measurement practices would be seriously damaging to the credibility of financial reporting, and might well have wider economic impacts. There is an important message here for regulators and all those with an interest in the credibility and quality of financial reporting. None of the options for diversity or consistency of measurement bases is without its problems and so any current situation is likely to have detractors. Good regulatory practice therefore needs to be followed to make sure that the need for trade-offs is recognised and that measurement changes are properly thought through. Otherwise, there are risks of financial reporting becoming discredited. The remainder of this chapter discusses matters which appear to merit further consideration, analysis and research if regulation of financial reporting measurement is to evolve in a progressive and beneficial way.

## **5.5 MEASUREMENT HIERARCHIES AND MIXED BASES**

Sometimes a hierarchy is proposed as a way of determining the use of different measurement bases for different items in accounts while retaining overall consistency of approach. In other words it offers 'a third way' between the alternatives of consistency and diversity reflected in Figure 5.2 and throughout this report.

The IASB discussion paper *Measurement Bases for Financial Accounting - Measurement on Initial Recognition* proposes, very broadly, the following hierarchy:

- fair value should be used where it can be measured reliably;
- where fair value cannot be measured reliably, current cost should be used where it can be measured reliably;
- where neither fair value nor current cost can be measured reliably, historical cost should be used.
- Although such an approach would result in a mixture of different bases being used for measurement, which might seem to fit the working hypothesis suggested in this report, there are some important potential objections to it.
- There is an assumption that one basis of measurement (fair value) is always the most relevant to users' needs, but this has yet to be demonstrated.
- There is an assumption that another basis of measurement (current cost) is always the second most relevant to users' needs, but this too has yet to be demonstrated.
- The reliability test in this context is open to a wide variety of interpretations in practice, and might well lead to the reporting of measurements that users would regard as unreliable.
- Hierarchical approaches involve additional expense in the consideration of theoretically preferred measurement alternatives that will ultimately be rejected, because of reliability problems, in favour of less preferred options.
- The complexity of the approach may make it difficult for users to understand.

Overall, it remains to be shown that a hierarchical approach of this sort would be cost-effective, but it merits proper consideration.

## **5.6 MEASUREMENT INFORMATION AND FINANCIAL STABILITY**

Concerns are sometimes expressed that current value accounting threatens the stability of markets. This argument can take different forms, but the most general is that current value measurements introduce unnecessary volatility into accounts (as market prices go up and down) and that this endangers financial stability. If such concerns are to be properly dealt with in the standard-setting process they need to be better understood.

One way in which instability could be introduced would be if users' models for interpreting financial reporting information, designed on the assumption of historical cost measurements, were not adjusted to recognise the implications of current value figures. The effect of this might be that volatility in the figures produces exaggerated reactions from decision-makers, and it is these reactions and their consequences that could cause unnecessary economic volatility. The implication is that once decision-makers are accustomed to the volatility of the figures, they will adjust their models to accommodate it, and not over-react. While this thought might be comforting in the long-term (though we shall see below why it might not be), it leaves an awkward and potentially dangerous interval while decision-makers adjust their models and their reactions to figures that show unanticipated volatility.

There is also a need to assess whether instability would in fact be avoided by not reporting current values or whether the choice is really between, for example, a probability of a degree of instability as a result of one measurement policy and a greater probability of a greater degree of instability, perhaps at a later date, as a result of an alternative measurement policy. Suppose, for example, that a business holds financial instruments which on a historical cost basis would be measured at zero, but which on a fair value basis would show a substantial loss at the balance sheet date. The effect of reflecting the fair value losses in the financial statements could be destabilising – managers might be fired, creditors might demand action to protect their position. If the losses had not been revealed, however, they might in due course have been reversed and nobody would be any the worse for their non-disclosure. But if the fair value losses at the balance sheet date are not disclosed, there is also a chance that action to address a real problem will be delayed, poor managers will remain in post causing further damage, and the creditors' position will deteriorate (without their knowing it) until it is too late to be protected.

Examples such as this lead some to argue that policies supposedly designed to ensure stability, which might include policies for financial reporting, can defer needed economic adjustments to the detriment of long-term growth. In essence, the suggestion is that what is called *maintaining stability* really means hiding problems and failing to tackle them.

This argument, that in effect volatility is good because it reflects reality and forces hard decisions to be taken early, does not sit entirely comfortably with the earlier argument that sharp reactions to volatile numbers are merely a transitional problem, and that once people are used to them they will react less sharply. The volatility is good position seems to imply that decision-makers are right to react sharply to volatile figures and that if they relax and take the view that the figures are bound to be volatile as a result of how they are prepared, the benefits of using current values will be lost. No doubt the sensible position is somewhere between the two extremes, where decision-makers react sharply when that is appropriate, but not when it isn't – something that will require highly skilled judgement.

The question of the relationship between financial reporting measurements and financial stability would be an appropriate topic for research.

## 5.7 ALTERNATIVE AND SUPPLEMENTARY APPROACHES

The discussion so far has assumed that the decision to be taken is: what basis or bases of measurement should be used in the accounts, i.e. in the income statement and balance sheet? But this is an oversimplification of the choices available. There are alternatives to including measurement information in the income statement and balance sheet, and there are ways of adding to the usefulness of measurement information beyond merely reporting it.

The possibility of alternative and supplementary approaches needs to be factored into regulatory processes related to financial reporting measurement as they will affect the balance of costs and benefits. For example, if information is to be audited, this will affect both its reliability and its total cost. Measurement decisions that ignore such considerations will lead to sub-optimal results. If measurement information is unauditably or compliance is unenforceable, the overall consequences may be negative.<sup>30</sup>

Some of the more important options that need to be considered and understood by standard-setters and regulators are:

- disclosure of alternative measurements;
- disclosure of supporting information;
- process requirements;
- assurance;
- use of hindsight; and
- enforcement procedures.

These are discussed briefly below. An approach developed by ICAEW that uses these techniques in relation to prospective financial information is outlined at Appendix 3.

### 5.7.1 DISCLOSURE OF ALTERNATIVE MEASUREMENTS

An item is measured in the balance sheet on only one basis, but this basis might be regarded as being to some extent unreliable or irrelevant. To counter this problem, additional measurements could be disclosed on alternative bases. For example, if the figures in the balance sheet are at historical cost, the notes could disclose information at fair value (or vice versa). In this way, the financial statements as a whole will contain information that is more useful than would otherwise be the case.

Using two bases of measurement simultaneously would, however, mean increased costs, and – depending on how the additional information is presented – could lead to doubts among some users as to which are the real numbers.

### 5.7.2 DISCLOSURE OF SUPPORTING INFORMATION

Sometimes the usefulness of measurement information can be increased by providing supplementary information. For example, users may form a different view of the relevance or reliability of a measurement if they are told how it is calculated and the assumptions that underlie it. The problem being addressed here is partly the risk that information will be misunderstood. But improved understanding of the information may also allow users to assess it as more relevant or reliable than they would otherwise have done. In some instances, the additional information may allow users to make their own calculations of figures that they regard as more relevant or more reliable.

One suggestion is that companies should distinguish in their disclosures between facts and estimates. It has been proposed, for example, that financial statements should have separate columns for *realised* amounts and *expected* amounts.<sup>31</sup>

### 5.7.3 PROCESS REQUIREMENTS

Sometimes requirements are imposed that concern, strictly speaking, neither measurement nor disclosure, but processes (which may ultimately lead to measurement or disclosure). For example, IAS 36, *Impairment of Assets*, in discussing the identification of an asset that may be impaired, sets out instructions on what the preparer of the accounts needs to ‘assess’, ‘test’ and ‘consider’. Process requirements of this sort can enhance the usefulness of measurement information.

#### 5.7.4 ASSURANCE

Assurance procedures – which include external audit, internal audit, and review procedures short of a full audit, each of which provides varying degrees of assurance – can be used to reduce reliability problems.

Various kinds of assurance procedure are relevant to financial reporting measurements: for example, checking measurements against hard data, checking the reasonableness of assumptions that underlie measurements, and checking the processes that lead to measurements. Where measurements are inherently subjective – eg, where there are allocations of historical cost, or fair value estimates not taken directly from market prices – assurance cannot make them objective, but the assurance provider may be able to give an independent opinion on the underlying assumptions and the processes leading to the measurement, and therefore on the measurement's reasonableness.

Research on the auditability of information prepared on different measurement bases would be useful.

#### 5.7.5 USE OF HINDSIGHT

It is accepted practice in financial reporting to revise measurements retrospectively where they contain material errors. Errors in this context arise from 'a failure to use, or misuse of, reliable information that:

- a. was available when financial statements for those periods [ie, prior periods] were authorised for issue; and
- b. could reasonably be expected to have been obtained and taken into account in the preparation and presentation of those financial statements' (IAS 8, *Accounting Policies, Changes in Accounting Estimates and Errors*).

However, where measurements were based on what seemed at the time to be reliable information, they are not subsequently revised even if they turn out to have been mistaken. For example, the information available when the accounts for year 200X are being prepared may indicate that a significant debt is recoverable. Later it may become clear that it is in fact irrecoverable. Or it may have been assumed that a fixed asset had a remaining useful life of five years, but in fact it turned to be just one year. Under current accounting practices, the accounts for year 200X would not be revised retrospectively, even though they relied on assumptions about the future that subsequently proved to be incorrect.

Professor Baruch Lev has proposed that prior year figures should be revised when they prove, in the light of later experience, to be mistaken. There are obvious limits to how far back it is useful to take such an exercise; as Professor Lev notes, 'an income number reported 10 years later may excite historians, but not investors.' Specifically, he proposes that a limited number of key estimates and assumptions should be open to revision in the light of later experience. There would be a materiality threshold to prevent immaterial revisions. And the revisions would only be performed (if required) at two points: one year and three years after the financial period in question.<sup>32</sup> So, in 2007, for example, a company would present its 2006 financial statements and, where appropriate, revisions to key estimates in its 2005 and 2003 financial statements.

#### 5.7.6 ENFORCEMENT PROCEDURES

Civil litigation, criminal sanctions, professional disciplinary proceedings, and procedures for reviewing and revising accounts – such as those of the Securities and Exchange Commission in the US and the Financial Reporting Review Panel in the UK – can all support the reliability of measurements by creating disincentives for the production of misleading information.

One problem with enforcement is that it is least effective where it is most needed – when measurements are subjective and unverifiable. In these circumstances it is difficult to establish whether measurements have been made in good faith, and enforcement procedures are therefore less likely to bite.

**PANEL 5.3: SUMMARY OF THE ARGUMENT (SECTIONS 5.5 - 5.7)**

- The cost-effectiveness of hierarchical approaches to measurement has yet to be demonstrated.
- The effect of financial reporting measurements on financial stability is an especially controversial area of public policy, which requires further research.
- In addition to measurement requirements affecting the income statement and
  - balance sheet, there is a need to consider and understand options such as:
    - disclosure of alternative measurements;
    - disclosure of supporting information;
    - process requirements;
    - assurance;
    - use of hindsight; and
    - enforcement procedures.

This report has emphasised the importance of evidence-based solutions and the need for research to support them. The next and final chapter suggests topics for research on measurement.

## 6. Next steps

### 6.1 EVIDENCE-BASED SOLUTIONS

The style of argument in debates on measurement issues tends to be top-down and deductive. A deductive approach is appropriate where problems can be solved by defining terms and where evidence is unavailable or irrelevant. But financial reporting problems – like other questions of what works in practice – do not seem to be of this type. And if a cost-effectiveness approach is taken to decisions on measurement, and if they are reviewed after implementation to see how far they have succeeded, this implies a much more evidence-based approach to measurement requirements than has usually been seen hitherto. There is a need for more research on the reliability and relevance of different measurement bases, and on how they affect such matters as management incentives and financial stability.

Ideally, using the stages of activity in the model of good regulatory practice presented in Figure 5.1, research programmes should play an essential role in improving how the following activities are conducted:

- consultation;
- making the case for change;
- evaluation of options; and
- evaluation of results.

Accounting research projects can be lengthy and inconclusive, and it could be argued that building them into the standard-setting process in this way will merely cause unnecessary delays in taking decisive action. But if the evidence is inconclusive, this should on the face of it provide a reason for caution, rather than an excuse to ignore the evidence. Nor are accounting issues always so urgent that it would be better not to wait for the results of research.

### 6.2 TOPICS FOR RESEARCH

The topics for research suggested here are intended to support an evidence-based approach to measurement in financial reporting. While ICAEW itself might fund projects on these topics, other organisations, including standard-setters, may also wish to do so. A first step would be to look at what research to date already tells us about the questions set out later in this chapter.

Chapter 3 of this report contains a number of statements about the relevance, reliability and cost of measurements prepared on different bases. These are working hypotheses that could be tested by research. Questions 1-7 below address these and other relevant issues.

Chapter 4 suggests, among other things, that financial reporting measurements might involve wider social costs than those incurred by preparers and users, and that measurement information mandated by standard-setters may differ from that needed by businesses' owners. Questions 8-9 address these issues.

Chapter 5 puts forward working hypotheses that it may be appropriate for standard-setters, in setting measurement requirements:

- to adopt a mixed approach to measurement for different items in accounts; and
- to distinguish between different classes of entity in accordance with their industry, ownership and governance structure, and size.

The suggestions for research at Questions 1-7 should provide information to support or reject these hypotheses, but Question 10 on users' need for consistency is also relevant. Chapter 5 also suggests that the auditability of measurement information is relevant and Question 11 addresses this.

Finally, Question 12 looks at what lessons can be learnt from past experience of experiments with measurement bases.

These are initial suggestions, and they will be revised and updated in the light of comments on this report, consultation with researchers, and other developments. While the cost-effectiveness of particular measurement requirements will depend on what exactly is required, research projects of the type suggested here should help to set the parameters for changes in financial reporting measurement requirements that are likely to be fit for purpose, cost-effective and, therefore, in the public interest.

### 6.2.1 USERS' NEEDS AND PRACTICES

Research is required into the needs, practices and views of different groups of financial reporting users.

1. For each of the following groups of users – lenders, private shareholders, private equity investors, institutional investors, and investment analysts:
  - How do they use measurement information?
  - Are they able to demand the information they need?
  - Which information do they regard as relevant?
  - Which information do they regard as reliable?
  - How far does disclosure of information (as opposed to its incorporation in the income statement and balance sheet) meet their needs?

These studies should include research into owners' use of measurement information in assessing managers' stewardship of a business. The research could also address the points made by the CFA Institute (see Section 3.4.3 above) that, for investment analysts, fair value information is the only relevant information and that many analysts have to spend their time adjusting historical cost balance sheets on to a fair value basis. Where relevant, research projects should address unlisted companies as well as listed ones. They should also take into account differences in size for both listed and unlisted companies – i.e, large listed and small listed companies' accounts may have different uses; large unlisted and small unlisted companies' accounts may have different uses. Research on how different types of measurement information affect stockmarket prices would provide evidence on how useful they are to users who buy and sell on the stock market.

### 6.2.2 SOURCES OF CURRENT VALUE INFORMATION

A significant question for the reliability of current value information is the availability of prices from active markets.

2. For specified groups of preparers:
  - What proportion of fair value measurements in financial statements are at a current market value taken from an active market?
  - For what proportions of assets and liabilities in corporate balance sheets do active markets exist? For what assets and liabilities not currently in corporate balance sheets do active markets exist?

### 6.2.3 PREDICTING CASH FLOWS

Asking users what information they regard as useful involves a subjective test of usefulness, but some aspects of usefulness might be tested objectively – for example, the usefulness of reported information in predicting future cash flows. It is generally accepted among standard-setters that one of the principal purposes of financial reporting is to provide 'information to help investors, creditors, and others assess the amounts, timing, and uncertainty of prospective net cash inflows to the ... enterprise.'<sup>33</sup> How far the different forms of accrual accounting succeed in doing this and indeed whether any of them provides superior information in this respect to cash accounting<sup>34</sup> are questions that it should be possible to assess objectively.

3. In terms of predicting future cash flows, what evidence is there of the comparative usefulness of:
- cash flow information;
  - historical cost measurements;
  - value to the business measurements;
  - fair value measurements;
  - realisable value measurements; and
  - value in use measurements?

#### 6.2.4 PREPARERS' AND USERS' COSTS

Research on preparers' and users' costs is also needed.

4. For the same groups of preparers as in Question 2:
- What costs do they incur in preparing financial reporting measurement information on different bases?
  - How do different methods of measurement affect management incentives?
  - What costs do they incur in changing measurement bases?

In choosing the groups of preparers for such research projects it will be important to establish first what measurement bases they use for management purposes and to select preparers who use different bases. Part of the exercise should be to establish the relative frequency of use of different bases of measurement among preparers for management purposes.

5. For the same groups of users as in Question 1:
- What costs do they incur in using information on different measurement bases?
  - What costs do they incur when measurement bases are changed?

The research at Question 4 would be helpful in assessing whether managers are assessing their own performance on different bases from those they use in reporting externally.

6. For the same groups of preparers as in Question 2: how well does the measurement information used to judge performance within the business match financial reporting measures of performance?

Costs may also be imposed on preparers if financial reporting requirements lead them to make sub-optimal management decisions. Alternatively, as is sometimes claimed, improved financial reporting may lead to better management decisions. Both possibilities need to be researched.

7. For the same groups of preparers as in Question 2: how do changes in financial reporting measurements affect management decisions?

#### 6.2.5 WIDER COSTS OF FINANCIAL REPORTING

This report has assumed that the costs of financial reporting information may not fall exclusively on its preparers and users, though it is difficult to identify cases where this occurs. Potentially negative effects on financial stability are one instance that has been suggested (see Section 5.6 above).

8. How do different methods of measurement affect financial stability?

### **6.2.6 OWNERS' SPECIFIED NEEDS**

In some cases, owners may be able to demand the information they need from a business. This is not necessarily financial reporting information, but it would be useful to know how it differs from the information that businesses are required to provide to their owners.

9. Where the owners of a business specify what financial information should be provided to them, how does this differ from the information provided in accordance with financial reporting standards and other forms of regulation?

### **6.2.7 IMPORTANCE OF CONSISTENCY**

A significant issue as regards users is the importance they attach to consistency (or uniformity) of measurement practices across companies.

10. Which users regard consistency as an overriding requirement, for which companies, and what are the consequences of inconsistency?

### **6.2.8 AUDITABILITY**

The reliability of measurements on different bases may be affected by whether they are auditable.

11. How effectively can financial reporting measurements on different bases be audited?

### **6.2.9 LESSONS OF EXPERIENCE**

As there is already considerable experience of the use of current value measurements, which were adopted in a number of countries in the 1970s and abandoned in the 1980s, this may also be a useful area for research.

12. What can be learnt from experience to date of adopting current value measurements? When, and why, has it been seen as successful or unsuccessful?

## *Appendix 1: Assessing information quality*

### **A1.1 KEY ATTRIBUTES OF GOOD INFORMATION**

Information that serves public policy objectives has to be useful, and if requirements for information are to change, it should be because the new information will be more cost-effective than the old.

The *Information for Markets and Society* report in the Information for Better Markets initiative proposes that information should always be fit for purpose and cost-effective. In deciding whether information meets these tests, regard should be had to nine key attributes of good information. The list is based partly on similar lists that appear in studies whose scope goes well beyond financial reporting, such as works on information systems and on research methods,<sup>35</sup> and partly on briefer lists of desirable characteristics of financial reporting information developed in the conceptual frameworks of the leading financial reporting standard-setters.

It is suggested that information should be:

1. **relevant**
2. **accurate**
3. **reliable**
4. **comparable**
5. **understandable**
6. **concise**
7. **timely**
8. **fairly presented and should**
9. **avoid perverse effects.**

These attributes are considered in turn below, with particular reference to how far they are relevant to financial reporting measurement information.

#### **A1.1.1 RELEVANT**

The principle that financial reporting measurements should provide relevant information seems to be indisputable. Two points are worth noting.

- Relevance is subjective. What is relevant to one user of information is not necessarily relevant to another. Even groups of users that are often referred to as though they have identical interests, such as shareholders, are likely in practice to have diverse preferences as to what they regard as relevant.<sup>36</sup>
- Relevance frequently conflicts in practice with the achievement of other objectives, such as accuracy and reliability. For example, current values may be more relevant than historical costs, but may be less reliable. Forecasts of future cash flows may be even more relevant and even less reliable. Behavioural factors also tend to make information less reliable the more relevant it is (see A1.1.9).

### A1.1.2 ACCURATE

The principle that financial reporting measurements should be accurate also seems to be indisputable, though because such measurements are often subjective or matters of convention, accountants are sometimes reluctant to use words like accuracy in case they give a misleading impression of certainty or objective reality. Some commentators regard accuracy as merely an aspect of reliability rather than a desirable characteristic in its own right; this point is discussed below.

### A1.1.3 RELIABLE

While everybody agrees that financial reporting measurements should provide reliable information, there is no consensus as to what exactly reliability means. For example, views differ as to whether verifiability is an essential component of reliability. In measurement generally (as opposed to financial reporting specifically), repeatability is usually regarded as a key aspect of reliability. A measurement of a physical attribute is reliable if different people making the same measurement would all arrive at the same answer. Financial reporting measurements do not concern physical attributes, but the principle of repeatability could still be applied to them, though with greater difficulty. 100 people estimating the recoverable amount of a portfolio of debts, for example, might reasonably come up with 100 different answers. While this may seem an unpromising result, it should at least establish the range and popularity of possible measurements of the recoverable amount.

Reliability implies not only that information is accurate, but that there is some reason why users should rely on it. This might be because the information has been verified by a third party or because it comes from a reliable source or for some other reason. Reliable and useful information should therefore be both accurate and have some additional characteristic that allows the user to place reliance on it. Perhaps trustworthiness would be an appropriate term for this characteristic. On this analysis, accuracy and reliability are distinct qualities.

A further important point about reliability is that, like relevance, it is subjective. Information that one person will accept as reliable will be rejected by another. It also depends heavily on context. Sources that would be accepted as reliable in one context would be rejected in another.

One interpretation of the reliability test is that financial reporting information should reflect only independently verifiable data.<sup>37</sup> However, for the reasons set out in Chapter 2, it can be argued that no basis of measurement meets the reliability test expressed in quite this way.

It is possible, indeed, that the importance of reliability in financial reporting is sometimes overstated and that, although in principle all measurements have to pass a reliability test before they are allowed in accounts, this principle is sometimes honoured more in the breach than in the observance. Ernst & Young, for example, cites real cases of charges for share-based payments where the possible range of reasonable calculations for the charge is extraordinarily wide (in one case, extending from £47m to £479m).<sup>38</sup> But charges for share-based payments nonetheless appear in accounts. How can measurements relating to pension liabilities decades into the future be regarded as reliable in any ordinary sense of the word? But would it be sensible for accounts to ignore such liabilities on the grounds that they cannot be reliably measured? Some considerations on the other side of the argument appear at A1.1.9 below.

In this report, measurements are treated as reliable if they are objective. The more objective a measurement is, the more likely it is that other persons making the same measurement on the same measurement basis would arrive at the same answer and the more likely it is to be verifiable.

Verifiability is a stronger test than auditability. As noted earlier (see Section 5.7.4), even subjective measurements can be audited. But where financial reporting information is to be audited, the more verifiable it is, the greater the potential reliance that can be placed on the assurance process.

**A1.1.4 COMPARABLE**

Comparability in financial reporting measurements has at least four aspects.

- Consistency in the treatment of different items and different transactions.
- Comparability of information across different reporting entities.
- Consistency across reporting entities in the measurement of similar items and similar transactions.
- Comparability over time.

The third item on the list may appear to be implied by the second. But at present, while different entities' reported numbers may well be comparable in the sense that they use the same measurement basis, they may nonetheless measure similar items at different amounts - because the items have different historical costs, for example.

Comparability is not an overriding objective. There is often a trade-off between comparability and other desirable qualities of financial reporting information. For example, it is often sensible for accounting requirements to change, which reduces comparability over time. And information that is cost-effective for one company may not be for another (see Section 5.4).

**A1.1.5 CONCISE**

Other things being equal, where information is concerned, the shorter the better.

The relevance of this to financial reporting is that some measurement information may need to be accompanied by significant explanatory material if it is to be properly understood. Financial reporting information has diverse purposes and diverse users, and the importance that different users attach to conciseness will vary depending on their capacity and willingness to spend time assimilating disclosures and explanations.

**A1.1.6 TIMELY**

There is no point in preparing information that arrives too late to be useful. Some types of measurement information may be quicker to prepare than others, or take less time to check. There may also be trade-offs with accuracy to the extent that information can be improved with the benefit of hindsight, and with reliability if independent checks would delay the information.

**A1.1.7 UNDERSTANDABLE**

The principle that information should be understandable if it is to be useful is indisputable, but there is often disagreement as to who needs to understand it. One argument sometimes put forward in relation to financial reporting information is that it only needs to be understood by financial reporting experts. The contrary view, which is that adopted here, is that users of financial reporting information should understand what it means and how to use it; this does not mean that they necessarily understand the details of how it is compiled. This is consistent with the diverse purposes and users of financial reporting, which is not used exclusively by financial reporting experts.

Users of financial reporting rely on information from a variety of sources, and if financial reporting becomes too difficult to understand (or less useful for any other reason), the result is likely to be that users will place relatively greater reliance on other sources. Some people believe that increased interest in narrative reporting is partly attributable to such causes.

### A1.1.8 FAIRLY PRESENTED

It is possible to provide accurate financial reporting information, but to give a misleading impression. Fair presentation may be a question of putting information in context, or of telling not just the truth but the whole truth, or of avoiding misleading arrangements or emphases in the way the information is presented. This is an issue that can be especially important where information is inherently uncertain – for example, because it is based on forecasts of business performance. Decisions on what constitutes fair presentation in any particular case are often subjective, so achieving this goal may conflict with meeting other criteria such as reliability and comparability.

### A1.1.9 AVOID PERVERSE EFFECTS

In assessing the probable and actual effects of measurement information:

- it is its impact on behaviour that counts; and
- how people use information and respond to it are therefore critical issues.

It cannot be assumed that those who use financial reporting information are perfectly rational in how they respond to it. Certain biases in the way that people typically process information are well-attested;<sup>39</sup> some of these are intellectual short-cuts that people use to make it easier to handle information, others are emotional biases. These biases may well affect how people deal with financial reporting information. For example, there is some evidence that investors tend to disregard the effects of changes in the value of money.<sup>40</sup> As much financial reporting information includes data that covers long periods of time, this could have a distorting effect on how people interpret it.

How, if at all, financial reporting should respond to such biases is far from clear. The point being made here is simply that they are relevant to how information is used, and are therefore at least potentially relevant to deciding measurement questions in financial reporting.

Much information is relevant because it measures performance on which organisations and individuals are judged. But if people are judged on the basis of a particular measure, this can have perverse effects: 'when a measure becomes a target, it ceases to be a good measure.' There are three key problems here:

- Desirable activities whose results are not reflected in the measurement will tend to be neglected. For example, some argue that concentration on annual profit measurement leads to the long-term and non-financial effects of actions being disregarded by managers.<sup>41</sup>
- There will be a tendency to redefine what is or is not included in the measurement, so as to achieve a favourable result.
- Those whose performance is being judged in the light of the measurement have a motive to bias it.

All of these are behavioural issues with which financial reporting (and business reporting in general) constantly has to grapple. Other things being equal, information that does not have perverse effects is obviously preferable to information that does.

The implications of such behavioural issues for financial reporting are profound, as they suggest a need for it to be constantly evolving to keep ahead of the behavioural techniques that will inevitably develop to ensure that reported measures are as favourable as possible, regardless of whether they reflect underlying reality. This gives the development of measurement practices dynamic and iterative qualities, illustrated in Figure 1.1.

There are also behavioural issues affecting the links between management reporting and financial reporting, and whether particular measurement practices lend themselves to fraud.

- As the standard-setting process has developed a life of its own, prescribed measurement practices have moved further and further away from the practices that businesses adopt to meet the information needs of their owners and managers. While this may be regarded as a progressive development, it also carries a risk that standardised measurement practices will become divorced from what owners and managers regard as useful. There also has to be a question as to how far it is sensible for those working within a business to judge their performance on one basis while reporting to the outside world on another. This issue is considered further in Section 4.1.
- The issue of fraud has been raised by, among others, Professor Ross Watts, who argues that 'If accounting standard-setters force accountants to include unverifiable value changes in income, ... frauds will increase.'<sup>42</sup> This is a question of the behavioural impact of information requirements.

- **A1.1.10 COST-EFFECTIVE**

Not all costs or all benefits are measurable in monetary terms, so although cost-effectiveness is an overriding principle, it is often difficult to apply. This principle does not conflict with the nine subordinate principles or desirable characteristics (each of which expresses a particular kind of benefit to be achieved or cost to be avoided), but is one to which they contribute. So the achievement of any particular benefit may be constrained by the costs of achieving it, and equally a cost that it would otherwise be sensible to avoid (eg, perverse effects) may be outweighed by the information's benefits.

The relevant costs here include those of:

- preparing the measurement information (including the costs of change);
- education costs for preparers and users;
- assimilation costs for users, eg, changing the models they use to interpret the information; and
- perverse effects.

Discussion on these issues is sometimes framed in a way that implies that the benefits of financial reporting information accrue to users, while its costs are borne by preparers. Neither of these propositions gives the whole story. For example, if financial reporting leads to stockmarket valuations that better reflect a company's prospects, then this is something from which arguably the whole of society benefits if it results in a better allocation of resources. And financial reporting information may impose costs on users, if it is complex or difficult to understand, or on society as a whole if it has perverse consequences (eg, creating financial instability).

These considerations make the task of judging the cost-effectiveness of financial reporting measurements broader and more difficult than it might appear at first sight.

## **A1.2 STANDARD-SETTERS' CRITERIA**

How do these criteria match those used by financial reporting standard-setters? The IASB's *Framework for the Preparation and Presentation of Financial Statements*, which is similar to that used by other leading standard-setters, gives four 'attributes that make the information provided in financial statements useful to users':

- **understandability;**
- **relevance;**
- **reliability** (which comprises the five qualities of faithful representation, substance over form, neutrality, prudence, and completeness); and
- **comparability.**

In addition, it gives two 'constraints on relevant and reliable information':

- **timeliness**; and
- **balance between benefit and cost.**

There are four differences between the IASB's list and the list at A1.1 above:

- In the list suggested at A1.1, for the reasons explained there, accuracy (or 'representational faithfulness' in the IASB's terminology) is treated as a distinct quality.
- The list at A1.1 identifies conciseness as a desirable quality. A possible explanation for the difference here is that the standard-setters' focus is perhaps tilted towards sophisticated users, who are not put off by lengthy explanations and disclosures.
- The list at A1.1 identifies fair presentation as a desirable quality. The IASB's description of 'neutrality' suggests that it is essentially the same as fair presentation, and therefore merely one aspect of reliability in the IASB's list.
- The list at A1.1 suggests that avoiding perverse effects is a desirable quality of information. Nothing in the IASB's list directly corresponds to this, but it could be argued that perverse effects are a cost, and that therefore the IASB's cost-benefit principle covers this criterion. The key point is that the costs of measurement information should be recognised as including its consequences as well as the costs of its preparation. Some discussions on this point assume that the costs of information are purely those of its preparation, and that its consequences are purely benefits.

The IASB and FASB are currently developing a common conceptual framework. In July 2006, they published proposals for the first two chapters of the framework in a discussion paper entitled *Preliminary Views on an Improved Conceptual Framework for Financial Reporting: The Objective of Financial Reporting and Qualitative Characteristics of Decision-Useful Financial Reporting Information*. It proposes four qualities of decision-useful financial reporting information:

- relevance (which includes timeliness);
- faithful representation (which includes verifiability, neutrality and completeness);
- comparability; and
- understandability;

and two pervasive constraints:

- materiality; and
- benefits that justify costs.

The most significant points in these proposals are the disappearance of reliability and the promotion of faithful representation.

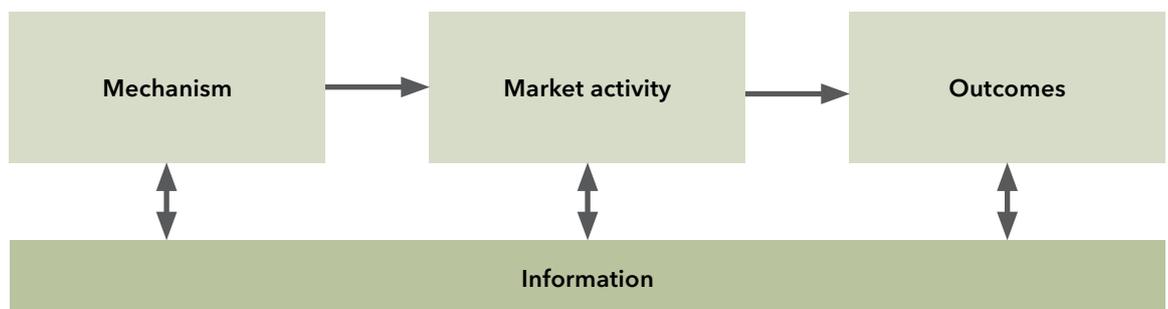
## Appendix 2: Promoting public policy objectives

### A2.1 A FRAMEWORK FOR ANALYSIS

Financial reporting requirements are a question of public policy, determined in the public interest. An earlier report in ICAEW's *Information for Better Markets Initiative, Information for Markets and Society*, sets out a way of approaching public policy issues that stresses the role of information in the design, implementation and assessment of public policy. It also recommends that where public policy proposals are made they should be accompanied by an information plan to show that the proposals' information implications have been considered.

*Information for Markets and Society* provides a simple model of public policy – the Information for Better Markets Framework – for analysing how society uses different mechanisms to steer the activity of markets towards the achievement of socially desired outcomes. This is illustrated below.

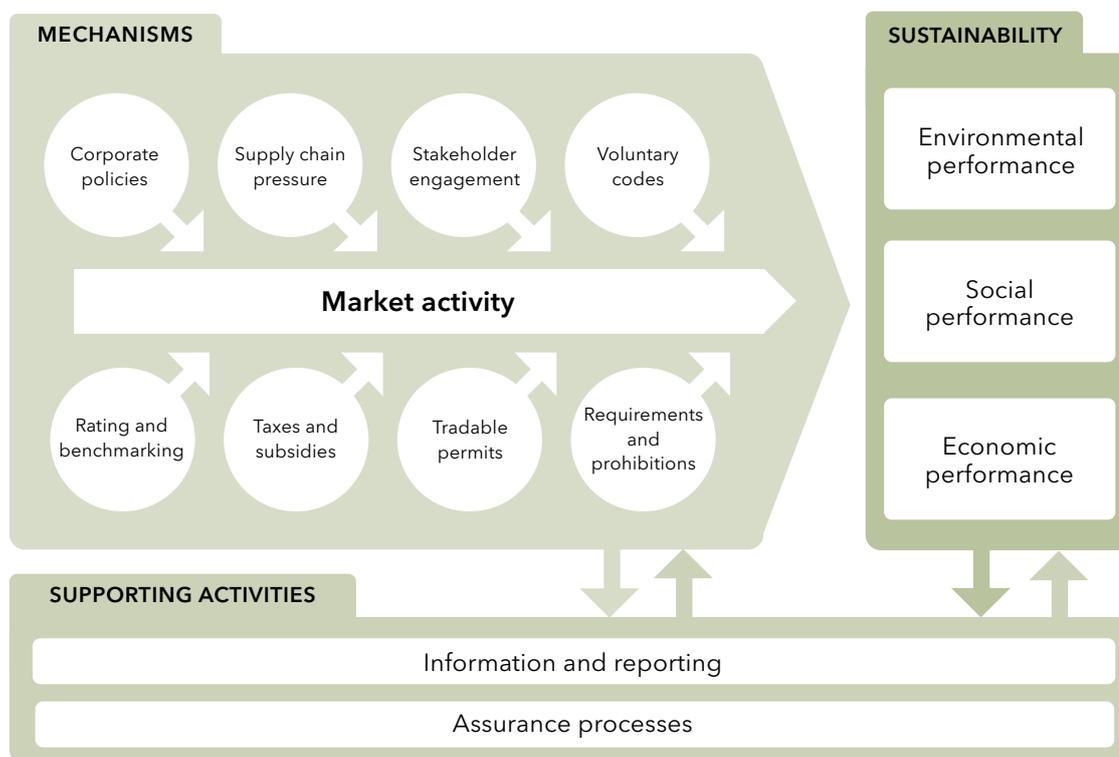
**FIGURE A2.1: INFORMATION FOR BETTER MARKETS FRAMEWORK**



In this model, **information** is driven by **mechanisms**, **markets** and **outcomes**, and has a feedback effect on each of them, leading to changes in the design of mechanisms, in market activity, and in the specification of outcomes.

**Outcomes** are the desired results of public policy, such as improving people's health or education or national economic performance, or protecting the environment, or reducing crime. The desired outcomes of public policy are usually achieved through lower level (subordinate) outcomes, which are in turn achieved through outcomes at a yet lower level, and so on – potentially this process can go on ad infinitum, but in practice it is usually sufficient to trace outcomes down through no more than a few levels. **Mechanisms** are the means that society employs to promote the outcomes that it desires. They may be laws and regulations or other forms of requirement, or various kinds of incentives and disincentives, or other ways of persuading people to change their behaviour. Eight types of mechanism (see Figure A2.2) were identified in ICAEW's *Information for Better Markets* report, *Sustainability: The Role of Accountants*.

FIGURE A2.2: A MARKET-BASED APPROACH TO SUSTAINABILITY



The term **markets** is used in this context to describe all the activities that lead to the achievement (or non-achievement) of desired outcomes. The role of **information** is to help in specifying outcomes, designing mechanisms and guiding market activity, and then to provide feedback. In the light of feedback, mechanisms, market activity and outcomes change, and changes in these elements lead in turn to changes in information requirements.

Not shown in the diagram, but of fundamental importance, are the cultural characteristics and institutional arrangements that support the elements of the Framework. For example:

- A society where there are relatively high levels of trust might be expected to have more reliable information and more efficient markets than other societies.
- Mechanisms relying on the hope of material gain might be expected to be more effective in a society where property rights are well protected than in other societies.

## A2.2 THE ROLE OF FINANCIAL REPORTING

How does financial reporting information fit into this framework? Financial reporting ultimately serves a number of different desired outcomes. One of these is economic growth. It does not promote growth directly; instead, growth is promoted through a number of subordinate outcomes. One of these could be described as *good business performance*. This in turn is promoted through subordinate outcomes that could be described as *good business decisions* and *good management*. Financial reporting information is one type of information that helps people understand whether desired outcomes are being achieved. Have good decisions been made? Have they been well implemented? Have they led to good performance?

Good business decisions covers all business-related decisions by investors, lenders, managers, suppliers, customers, employees, and so on.

- **Investors** decide what actions to take regarding the management of the companies in which they invest, taking into account managers' stewardship of the business, and whether to buy, hold or sell shares.
- **Lenders** decide whether to lend, on what terms, and whether to enforce security.
- **Managers** take the strategic and day-to-day decisions that direct a business's activities.
- **Suppliers** decide whether to supply a particular customer and on what terms.
- **Customers** decide whether to buy from a particular supplier and on what terms.
- **Employees** decide whether to enter into and remain in employment with a particular employer and on what terms.

The groups whose decisions are assisted by financial reporting information are diverse, and they may therefore have different information needs. And it cannot be assumed that all the members of any one group, such as investors, will have similar information needs.

*Good management*, in the sense used here, refers to the implementation of decisions. Good decisions can be incompetently implemented, leading to poor performance. The consequences of poor decisions can be mitigated by skilled managers.

Some business decisions are also determined, limited or activated by financial reporting information in accordance with previously agreed contracts or requirements. For example, in relation to managers' pay, dividends, and lenders' rights, financial reporting information automatically triggers or limits actions determined by previous decisions (embodied in the terms of the relevant contract or requirement). In these situations, outcomes will be poor if the financial reporting is poor.

Other public policy outcomes that are served by financial reporting include:

- **The prevention of fraud.** Financial reporting is a way of helping to ensure that, among other things, creditors' and shareholders' money has not been stolen.
- **Fairness** among investors. If some investors in a company have more information than others, this can lead to unfairness.
- **Fairness in taxation.** Fairness in taxation requires profit information that is comparable and checkable.
- **Protection of depositors.** Regulators require information on banks' financial health in order to protect depositors.
- **Protection of the insured.** Regulators require information on insurers to protect the insured.
- **Protection of investors.** Regulators require information on investment vehicles to protect investors.
- **Protection of consumers.** Regulators who set service levels or limits to prices in industries where competition is restricted require information on the costs and income of regulated businesses.
- **Promotion of competition.** Regulators require information on businesses to assess their profitability in different markets, and so do potential market entrants.<sup>43</sup>

What are the mechanisms that public policy can draw on to secure the desired outcome of good financial reporting information?

- Through **requirements and prohibitions**, laws and standards can lay down what information should be provided and how it should be prepared.
- Through **rating and benchmarking**, external observers can rate the quality of information provided, encouraging companies to emulate one another.
- Through **voluntary codes**, as are found in some specialised sectors, businesses can agree improvements and voluntary standards in reporting.
- Through **stakeholder engagement**, investors and others can persuade businesses to improve their disclosures.
- Through **corporate policies**, individual companies may decide that they will adopt improved disclosures, perhaps because they see advantages in greater transparency.

Approaching financial reporting measurement as a public policy issue has a number of implications. These include:

- All the diverse public policy uses of financial reporting information should be taken into account, and decisions on measurement should be assessed in terms of their cost-effectiveness in contributing to the desired outcomes of public policy.
- It should be assessed whether making and enforcing rules on measurement is always the most cost-effective way of achieving desired outcomes.
- Desired outcomes are achieved by affecting behaviour. In assessing the probable and actual effects of measurement information, it is its impact on behaviour that counts. How people use information and respond to it are therefore critical issues. 'A good standard or reform is one that works in practice and how it works in practice will depend on how managers and others use it.'<sup>44</sup>

## *Appendix 3: Prospective financial information*

There has been increasing demand in recent years for more disclosure of prospective financial information (PFI). Although PFI disclosures are invariably regarded as being relevant to investors, there are also good reasons why they are not made on a regular and comprehensive basis by all companies. Doubts often surround the accuracy, reliability and understandability of such financial information.

A reasoned approach to the disclosure of such information, balancing its costs against its benefits, and suggesting ways in which potential problems can be managed, has already been developed in an earlier report in ICAEW's *Information for Better Markets* series, *Prospective Financial Information: Guidance for UK Directors*. In this case the problems arise because of the inherent uncertainty of PFI. A novel feature of the ICAEW report is its emphasis on verbal explanations to counter the disadvantages of reliance on numbers alone.

Three key principles set out in the report are:

- **The reasonable disclosure principle.** 'To be understandable, PFI should contain disclosure that is reasonable, and so PFI should not be presented in situations of such uncertainty that the disclosure becomes too complex or extensive to be understood or used by investors. PFI should be structured in such a way that users encounter more significant information first, including, where appropriate, information relating to the uncertainty attached to the PFI.'
- **The business analysis principle.**  
'For PFI to be reliable, it should be supported by analysis of the entity's business and should faithfully represent factually-based strategies, plans and risk analysis.'
- **The subsequent validation principle.**  
'For PFI to be comparable, it should be capable of subsequent validation by comparison with outcomes in the form of historical financial information.'

These principles are derived directly from the qualitative characteristics of financial reporting information given in the IASB's *Framework for the Preparation and Presentation of Financial Statements* (see Section A1.2 above). The report also makes use of all the 'alternative and supplementary approaches' referred to in Section 5.7 above, including principles for the process by which PFI should be prepared, setting out how the process should be planned and what should be considered in preparing PFI.

This approach shows how problems in the disclosure of information can be contained. It might usefully be applied to comparable financial reporting measurement information, such as fair values based on models or value in use calculations. It also shows that limits sometimes have to be set to what can be disclosed when information's potential benefits would be outweighed by excessive length or complexity.

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## Endnotes

- <sup>1</sup> F. E. P. Sandilands (Chairman), *Inflation Accounting: Report of the Inflation Accounting Committee*, London: HMSO, 1974, p 39.
- <sup>2</sup> ABC interview, 2 April 2004.
- <sup>3</sup> Ray Ball, in 'IFRS: pros and cons for investors', *International Accounting Policy Forum*, special issue of *Accounting and Business Research*, forthcoming (2006), states that 'It is simply incorrect to view the prevailing financial reporting model as "historical cost accounting". Financial reporting ... is a mixed process involving both historical costs and ... fair values.'
- <sup>4</sup> One way of expressing this is that transactions are endogenous rather than exogenous. See John Christensen and Joel S. Demski, *The Non-Neutrality of Reporting Standards* (May 2005), <http://bear.cba.ufl.edu/demski>.
- <sup>5</sup> See Joanne Horton, Richard Macve and George Serafeim, *Accounting for life assurance: a state of the art in the UK and Continental Europe*, London: ICAEW, forthcoming (2007).
- <sup>6</sup> Nick Anderson of American Appraisal, quoted in Barney Jopson, 'How the number crunchers put a price to a name', *Financial Times*, 27 June 2006, p 12.
- <sup>7</sup> All accounting accruals (versus simply counting cash) involve judgements about future cash flows', Ray Ball, 'IFRS: pros and cons for investors', *International Accounting Policy Forum*, special issue of *Accounting and Business Research*, forthcoming (2006).
- <sup>8</sup> Staff of the Canadian Accounting Standards Board, *Measurement Bases for Financial Accounting - Measurement on Initial Recognition*, London: IASC Foundation, 2005, p 44.
- <sup>9</sup> IASB, *Preliminary Views on an Improved Conceptual Framework for Financial Reporting: The Objective of Financial Reporting and Qualitative Characteristics of Decision-Useful Financial Reporting Information*, London: IASC Foundation, 2006.
- <sup>10</sup> A point stressed in Ross L. Watts, 'Conservatism in accounting, Part I: explanations and implications', *Accounting Horizons*, vol. 17, no. 3, September 2003, pp 207-21.
- <sup>11</sup> Yuji Ijiri, 'A defense of historical cost accounting', in P. T. Wanless and D. A. R. Forrester (eds.), *Readings in Inflation Accounting*, Chichester: John Wiley, 1979, pp 62-74, at p 66.
- <sup>12</sup> The best-known exposition of the value to the business basis of measurement is Edgar O. Edwards and Philip W. Bell, *The Theory and Measurement of Business Income*, Berkeley: University of California Press, 1964. Section 3.3 does not necessarily match either their version of value to the business or their conclusions. A more recent statement of the case for value to the business is Jeremy Edwards, John Kay and Colin Mayer, *The Economic Analysis of Accounting Profitability*, Oxford: Clarendon Press, 1987. Andrew W. Stark, 'The impact of irreversibility, uncertainty and timing options on deprival valuations and the detection of monopoly profits', *Accounting and Business Research*, vol. 28, no. 1, Winter 1997, pp 40-52, develops an alternative version of deprival value with an option to wait.
- <sup>13</sup> Edwards, Kay and Mayer (p 126) note the crudity of how replacement costs were calculated in practice during the UK's current cost accounting experiment of the 1970s and 80s. Industry-wide price indices were used instead of asset-specific replacement costs.

- <sup>14</sup> William Baxter, *The Case for Deprival Value*, Edinburgh: Institute of Chartered Accountants of Scotland, 2003, p 17. See also Christopher Nobes, *Liabilities and their Measurement in UK and International Standards*, London: Certified Accountants Educational Trust, 2003, p 68. For a different view, see Andrew Lennard, *Liabilities and How to Account for Them: An Exploratory Essay*, London: Accounting Standards Board, 2002.
- <sup>15</sup> See, e.g., *Inflation Accounting: Report of the Inflation Accounting Committee*, pp 61, 162.
- <sup>16</sup> Edwards, Kay and Mayer (p 10) argue that value to the business is 'the single correct way of measuring profit and capital' for the specific purpose of calculating 'an accounting rate of profit which will be compared with the opportunity cost of capital in order to assess performance'. This is based partly on the argument that replacement cost measures opportunity value, as 'one opportunity available [to a business at any moment] is to replace its assets' (p 39). This appears to be a different concept from opportunity cost, and reflects a different analysis of the opportunities open to a business. The usual analysis of these opportunities is that at any given moment, and for any particular item, there are only two options: sell or hold. On this logic, the opportunity cost of an asset held at the balance sheet date is its disposal value at that date. However, Robert R. Sterling, *Theory of the Measurement of Enterprise Income*, Lawrence, Kansas: University of Kansas Press, 1970, states that, where an asset must be replaced, its opportunity cost is its replacement cost (p ix).
- <sup>17</sup> Concepts Statement 7 is an often-cited statement of the case for fair value – somewhat incongruously as it does not in fact advocate regular revaluation of all items in accounts on that basis and states that it 'does not apply to measurements based on ... observation of fair values in the marketplace', which is supposed to be their principal source. Also, as noted above, FASB's views have moved on since this statement was issued. Mary E. Barth, 'Including estimates of the future in today's financial statements', *Accounting Horizons*, vol. 20, no. 3, September 2006, pp 271-85, gives a recent statement of the case for fair value. Professor Barth, a member of the IASB, notes that 'fair value accounting is the only comprehensive and internally consistent approach the IASB has identified' (p 274). Section 3.4 does not necessarily match either FASB's or Professor Barth's version of fair value or their conclusions.
- <sup>18</sup> *Measurement Bases for Financial Accounting – Measurement on Initial Recognition* (para 89) points out an inconsistency in this definition, which to be consistent should refer to the amount for which a liability could be *exchanged* rather than settled.
- <sup>19</sup> Tony van Zijl and Geoffrey Whittington, in 'Deprival value and fair value: a reinterpretation and a reconciliation', *Accounting and Business Research*, vol. 36, no. 2, 2006, pp 121-30, show how value to the business and fair value can be made equivalent by a small number of changes to their definitions.
- <sup>20</sup> CFA Centre for Financial Market Integrity, *A Comprehensive Business Reporting Model: Financial Reporting for Investors*, Charlottesville: CFA Institute, 2005, p 6.
- <sup>21</sup> See *Ernst & Young, How Fair Is Fair Value?*, London: Ernst & Young, 2005. Ernst & Young also stress the 'frequent lack of reliability' of fair value measurements.
- <sup>22</sup> A well-known exposition of the case for adopting the realisable value basis of measurement is P. N. McMonnies (ed.), *Making Corporate Reports Valuable*, London: Kogan Page in association with the Institute of Chartered Accountants of Scotland, 1988. An earlier, more theoretical, argument appears in Sterling, *Theory of the Measurement of Enterprise Income*, though this is designed to fit the circumstances of 'a wheat trader in a perfect market' (p 4). Section 3.5 does not necessarily match either of these publications' versions of realisable value or their conclusions.

- <sup>23</sup> The case for value in use as the basis of measurement – at least for listed companies in financially sophisticated markets – is explained in Neil Chisman’s paper, *The Basis of Measurement in Accounting* (available at [www.icaew.co.uk](http://www.icaew.co.uk)). Section 3.6 does not necessarily match Mr Chisman’s version of value in use or his conclusions.
- <sup>24</sup> J. R. Hicks, *Value and Capital*, Oxford: Oxford University Press, 1946, p 172. Hicks also states that ‘At bottom, [concepts such as Income] are not logical categories at all; they are rough approximations, used by the business man to steer himself through the bewildering changes of situation that confront him. For this purpose, strict logical categories are not what is needed; something rougher is actually better’ (p 171).
- <sup>25</sup> ‘Managers may have some information investors do not, but in aggregate investors have a lot of information the management does not. In addition, the managers’ valuation model is often crude and noisy’: Watts, ‘Conservatism in accounting, Part I: explanations and implications’, p 219.
- <sup>26</sup> Paul M. Healy and Krishna G. Palepu, in ‘Information asymmetry, corporate disclosure, and the capital markets: a review of the empirical disclosure literature’, *Journal of Accounting and Economics*, vol. 31, 2001, pp 405-40, note that ‘surprisingly little is known about why financial reporting and disclosure is regulated in the capital market’ (p 414).
- <sup>27</sup> See *Information for Markets and Society*, London: ICAEW, 2005, pp 7-11.
- <sup>28</sup> No one concept of profit appears to be most appropriate for all purposes’: Edwards and Bell, p 110.
- <sup>29</sup> *Information for Markets and Society*, London: ICAEW, 2005, pp 26-9.
- <sup>30</sup> Ross L. Watts, ‘What has the invisible hand achieved?’, *International Accounting Policy Forum*, special issue of *Accounting and Business Research*, forthcoming (2006), argues that ‘non-auditable standards generate frauds’.
- <sup>31</sup> See, for example, Jonathan C. Glover, Yuji Ijiri, Carolyn B. Levine, and Pierre Jinghong Liang, *The Emerging Needs to Separate Facts and Forecasts: Exploring ‘Intertemporal Financial Statements’ with Two Time-Phases*, working paper, 2002, <https://littlehurt.tepper.cmu.edu/gsiadoc/WP/2004-E27.pdf>.
- <sup>32</sup> Baruch Lev, ‘Corporate Earnings: Facts and Fiction’, *Journal of Economic Perspectives*, vol. 17, no. 2, spring 2003, pp 27-50.
- <sup>33</sup> FASB, Statement of Financial Accounting Concepts No. 1, *Objectives of Financial Reporting by Business Enterprises*, Norwalk: FASB, 1978, p 17.
- <sup>34</sup> Baruch Lev, Siyi Li and Theodore Sougiannis conclude that, for the data they have studied, ‘accruals do not improve the prediction of cash flows, beyond that achieved by current cash flows’, see *Accounting Estimates: Pervasive, Yet of Questionable Usefulness* (April 2005), <http://pages.stern.nyu.edu/~blev>.
- <sup>35</sup> See, for example, John G. Burch, Jnr and Felix R. Strater, Jnr, *Information Systems: Theory and Practice*, Santa Barbara: Hamilton Publishing, 1974, pp 34-5; Paul Bocij, Dave Chaffey, Andrew Greasley and Simon Hickie, *Business Information Systems: Technology, Development and Management*, London: Financial Times Pitman Publishing, 1999, pp 11-3; and Donald R. Cooper and Pamela S. Schindler, *Business Research Methods*, New York: McGraw Hill Irwin, 2003, pp 231-40. There is also a valuable discussion in Fédération des Experts Comptables Européens, *Principles of Assurance: Fundamental Theoretical Issues with respect to Assurance in Assurance Engagements*, Brussels: FEE, 2003.

- <sup>36</sup> Christensen and Demski emphasise the specificity of different users' 'tastes, beliefs and opportunities', and therefore conclude that an approach based on generalised qualities of relevance and reliability is 'at odds with economic rationality'.
- <sup>37</sup> See, for example, Ray Ball, 'Infrastructure requirements for an economically efficient system of public financial reporting and disclosure' in Robert E. Litan and Richard Herring (eds.), *Brookings-Wharton Papers on Financial Services 2001*, Washington DC: Brookings Institution Press, 2001, pp 127-68, 179-82.
- <sup>38</sup> *How Fair is Fair Value?*, London: Ernst & Young, 2005, p 5.
- <sup>39</sup> For a summary in relation to finance, see David Hirshleifer, 'Investor psychology and asset pricing', *The Journal of Finance*, vol. 56, no. 4, August 2001, pp 1533-97.
- <sup>40</sup> Eldar Shafir, Peter Diamond and Amos Tversky, 'Money Illusion', *The Quarterly Journal of Economics*, vol. 112, no. 2, May 1997, pp 341-74. The authors note that 'People attend to nominal value because it is salient, easy to gauge, and in many cases provides a reasonable estimate of real worth. Furthermore, it fits with the general notion that most objects around us, particularly units of measurement, do not regularly change' (p 366). Other references in Hirshleifer, p 1570.
- <sup>41</sup> This is a problem identified by some of the proposals reviewed in *New Reporting Models for Business*, London: ICAEW, 2003, an earlier report in the Information for Better Markets series.
- <sup>42</sup> Ross L. Watts, 'What has the invisible hand achieved?', *International Accounting Policy Forum*, special issue of Accounting and Business Research, forthcoming (2006).
- <sup>43</sup> Edwards and Bell (p 5) stress that 'Published accounting data should ... call attention to monopoly profits, and provide relative profitability figures to potential entrants into an industry'.
- <sup>44</sup> Ross L. Watts, 'What has the invisible hand achieved?', *International Accounting Policy Forum*, special issue of Accounting and Business Research, forthcoming (2006).

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