Irish Accounting Review (1998), Vol. 5, No. 1, 83–113

DISCOUNTING: ITS ROLE IN FINANCIAL REPORTING

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ABSTRACT

A number of recent accounting standards and discussion papers have implemented or discussed the process of discounting as part of the regulatory framework. The paper asserts that this has resulted in the piecemeal implementation of an interesting new measurement technique in financial reporting. It contends that the Accounting Standards Board should have examined the considerable body of research already published on the subject so as to ensure consistent application of the underlying concept and to conform with the ASB's own draft Statement of Principles. The paper then explores current practice in the United Kingdom/Ireland together with comparative practice in the United States to illustrate the divergences that currently exist and to suggest a possible framework for a future statement of best practice on the issue.

INTRODUCTION

Discounting has been established for many years as an integral part of both management accounting and financial management, particularly in the field of investment appraisal. Drury (1992) notes that both the Internal Rate of Return (IRR) and the Net Present Value (NPV) methods have been adopted extensively by British manufacturing industry. However, the extension of discounting to become an important measurement issue in financial reporting is only a recent innovation. Discounting has crept into financial reporting practice on a piecemeal basis with its inclusion in several of the more recent accounting standards, e.g. FRS 7, SSAP 21 and SSAP 24, and the probability that it will be incorporated in proposed changes in accounting standards with respect

to deferred tax and the impairment of fixed assets and goodwill. Unfortunately there is little discussion as to whether or not it is appropriate to adopt discounting in financial reporting at all and, if it is, to what extent it should be applied. Should it apply only to monetary assets and liabilities or should the technique be extended across the full spectrum of assets and liabilities recorded on the balance sheet? There is also the additional problem of forecasting future cash flows and deciding on an appropriate discount rate or rates to apply in different circumstances. At present there is very little standardisation, not only within the UK/Irish regulatory framework but also internationally.

The purposes of this paper are: to identify the key issues emerging from a review of the literature, particularly from the USA where discounting has developed at a faster rate than in the UK/Ireland; to investigate to what extent discounting has already been integrated into financial reporting in UK/Ireland; and to identify the problems that need to be resolved before further implementation of the concept takes place in accounting standards.

DISCOUNTING AND THE ACCOUNTING STANDARDS BOARD

Weil (1990) defines discounting as a measurement technique which takes into account the time value of money. It recognises that the timing of a cash flow affects its value. It usually takes the following form:

$$PV = F \times (1 + r)^{-t}$$

where	PV represents the present value on the valuation date of future cash flows discounted at the interest rate r.
and	F is a future cash flow which occurs t periods from the date of valuation.
and	r is the discount rate or rate of interest appropriate for the borrower for periods counted by t.

It therefore requires estimates of future cash flows, their timing and an appropriate discount rate. The major problem for financial reporting is

that the technique is future-orientated and therefore subject to considerable uncertainty.

Why is there a need for discounting in financial reporting? Under the draft *Statement of Principles* (ASB, 1995a) the emphasis in financial reporting has swung from a concentration on matching income with its related expenditure to ensuring that assets and liabilities are fairly recorded on the balance sheet and valued at a monetary amount that can be measured sufficiently reliably (para. 4.6) before any matching can take place. The phrase 'sufficiently reliably' requires a method of measurement that faithfully represents the quantity being measured and, as part of that process, reasonable estimates often have to be made. However, these are subject to considerable uncertainty as they depend on estimates of the receipt or transfer of future economic benefits. The *Statement of Principles* also recognises that current or future information is more relevant to users of financial reporting than historical-cost data.

Chapter five of the *Statement of Principles* recommends the adoption of current values in valuing assets on the balance sheet in the long term and in particular sanctions the 'value to the business' concept, i.e. the lower of replacement cost and recoverable amount (the latter being defined as the higher of an asset's value in use and its net realisable value). Value in use requires the estimation of future economic benefits discounted to present value. As the Accounting Standards Board's (ASB) own working paper on the role of discounting in financial reporting (ASB, 1997c, p.2) explains, a failure to discount would result in unlike items appearing to be alike:

> A riskless cash inflow of £1 million due tomorrow, a riskless cash inflow of £1 million due in ten years and a risky cash inflow of £1 million due in ten years would all be recorded at £1 million.

Clearly no reporting entity would regard these as equal nor would they cost the same to acquire. If they are all recorded at £1 million then relevant information has been lost. The difficulty that the accounting profession faces is the extent to which the process of discounting should be applied. It could be argued that it need not apply to every asset and liability on the balance sheet, particularly not to those that will result in

a cash flow movement in the near future. In such situations the period will often be too short to result in any material difference between the discounted and undiscounted values.

Until recently, the only serious attempt to promulgate a consistent approach to the subject in the UK/Ireland was Technical Release (TR) 773 by the Institute of Chartered Accountants in England and Wales, entitled *The Use of Discounting in Financial Statements* (ICAEW, 1989). This drew its material from a detailed research study carried out earlier by Lovejoy, Peasnell, Taylor and Talukar (1989). However, very few of its suggestions have been incorporated into accounting standards despite the fact that a number of recent standards and exposure drafts have included discounting as part of their regulations. The ASB (1997c), however, has now issued guidance on the subject in the form of a working paper. It is not clear at this stage whether or not this publication will form the basis of a future statement of best practice or will simply be left in its present form as a working guideline for the standard-setters.

LITERATURE REVIEW

General Overview of the Literature

Discounting has occupied an important position in the academic accounting and economics literature for many years. Fisher (1906) defined wealth in discounted cash flow terms. Hicks (1946) refined many of Fisher's ideas in his classic publication *Value and Capital*. Hicks' work formed the foundation of the Economic Income Concept which was applied to the calculation of income/profits. Hicks argued that the main purpose of calculating income was to provide individuals with an indication of the amount that they could consume without impoverishing themselves, i.e. the maximum that an individual could consume during a period and expect to be as well off at the end of the period as at the start.

This welloffness was measured by evaluating the wealth of an individual as represented by past savings or capital at both the start and end of a period. This could be achieved by adopting a forward-looking approach to valuation and calculating the net present value of the ex-

pected future benefits to be derived from that capital. This can be expressed in the following equation:

$$Y = C + (K_2 - K_1)$$

where Y = income
C = consumption
K_2 = capital at the end of the period measured at present value
and K_1 = capital at the start of the period measured at present value

This has become known as the *ex-ante* concept of income model as the cash flows are estimated at the start of the period. The model, however, assumes perfect knowledge and foresight — an ideal world. The reality is that expectations will not necessarily be realised and therefore there is a need to look back and recalculate the flows after the event, i.e. the *ex-post* model. Income is still based on expectations but this approach will result in the creation of windfall gains and losses.

Barton (1974) and Ijiri (1975) argued also that users required some form of *ex-post* notion of profit which would be conceptually different from *ex-ante* economic income. Investors require both *ex-ante* and *ex-post* data, the former to provide a valuable insight for the evaluation and selection of alternative investment strategies, whilst the latter is essential for the effective assessment of performance.

Rohen (1974), in the context of identifying the objectives of financial reporting on behalf of the American Institute of Certified Public Accountants (AICPA), attempted, and partially succeeded, in preparing a real world set of company financial statements on a discounted cash flow basis. However, the study failed to examine important issues such as possible managerial manipulation of cash flows and the overall cost/benefit constraints of providing the data.

Lee (1985), in summarising Hicks' model, argued that the validity and feasibility of the model in a world of uncertainty was severely constrained by the requirement to forecast future cash flows with the attendant problems of the timing of benefits, reinvestment predictions and growth factors. The choice of an appropriate discount factor dependent

on the investment preferences and alternatives open to the individual created a further difficulty. Lee therefore submitted that a general economic income model did not appear to satisfy the main qualitative characteristics of reliability and objectivity. However, he also argued that the model should not be dismissed out of hand as it did conform with the qualitative characteristic of relevance. He suggested that it could be regarded as a standard or ideal against which other accounting models could be judged.

Peasnell (1977) reached a similar conclusion that a discounted present value model was inappropriate for direct use within the practice of financial reporting because of the severe conceptual and practical difficulties in its application. However, he argued that an indirect use of the model should not be ruled out. It was contended that discounted present values yield insights into investors' decision processes and provide useful background to the uses to which financial statements could be put.

Lovejoy et al. (1989) provided the greatest in-depth study of the subject in the UK/Ireland. The study was undertaken on behalf of the Research Board of the ICAEW to identify the extent to which discounting had developed in the UK in practice and to provide a succinct analysis of the issues involved in applying discounting within financial reporting. From their empirical research it is clear that many companies have adopted discounting for capital budgeting purposes. With respect to financial reporting, some 69% of respondents to a questionnaire indicated that they had adopted discounting in accounting for leases and 17% indicated the use of discounting for other purposes within the field of financial accounting. These included its adoption for defined benefit schemes under SSAP 24 (ASC, 1988; see now ASB, 1995c) and as part of the fair value exercise on acquisition (see now ASB, 1994b). The study concluded that discounting had a role to play in external reporting but at the same time it identified several problems, particularly in relation to the determination of the 'correct' discount rate to adopt and in the prediction of future cash flows.

In a similar study in the USA, Weil (1990) addressed the problem of creating a coherent treatment of interest and discounting in financial reporting. He set out to identify current practice, to identify which assets and liabilities were anomalous when accounting fails to consider

the time value of money and to consider where discounting could be used within the context of historical-cost accounting. He concluded that financial accounting had treated discounting haphazardly, that inconsistencies had arisen in practice and that a single conceptual set of criteria consistent with the existing historical-cost accounting model did not exist. However, he did recognise that the accounting profession had become more comfortable with the concept of compound interest and that there was now a more benign environment for further clarification of the main principles of discounting.

One of the most comprehensive reviews of the subject was undertaken in Canada by Milburn (1988), where it was examined how the time value of money could be incorporated within the existing historical-cost accruals framework. He concluded that the incorporation of present values would substantially improve the internal consistency and conceptual credibility of the model. He recognised that this was a very broad-ranging and difficult task and should therefore be proceeded with on two levels. Firstly, to establish an explicit present value framework as the conceptual basis for addressing specific issues; and secondly, to establish a prioritised programme for addressing specific areas of practice. However, the study was carried out at a time when the accruals-based model was at the forefront of current thinking in financial reporting. The emphasis has now switched instead to the valuation of assets and liabilities. Milburn noted also that most financial accountants would need to be re-educated to upgrade their understanding of present value concepts.

Objectives of Discounting

Lovejoy et al. (1989) recognised that discounting could be adopted not only for the process of allocating costs against related revenue but also for ascertaining the 'correct' cost or value for measuring assets/liabilities on the balance sheet. From an allocation perspective, discounting is concerned with the matching principle. It aims to ensure that costs are effectively allocated to accounting periods so as to match them against their expected benefits. This is particularly the position with those accounting transactions having an effect lasting over a long period of time, where discounting is likely to have a material impact on the financial results of the reporting entity.

However, the value in use of an asset requires discounting as the reporting entity needs to estimate the future cash flows to be derived from using the asset, many of which will not be received for several years. This valuation is particularly relevant when the present value of those flows is less than an asset's original or replacement cost. Under SSAP 16 (ASC, 1980) this was partly implemented within the 'Deprival Value' concept in that the current cost of an asset was to be valued at the lesser of:

- Its net current replacement cost; and
- The greater of:
  - ◊ its net realisable value on sale; and
  - ◊ its economic value.

The latter was to be calculated as the discounted present value of the asset at the date of valuation of the future net cash flows associated with its ownership.

There are considerable difficulties in meeting both the allocation and valuation objectives and Ernst & Young (1993) believe that they are incompatible. There is a clash between the balance sheet and the profit and loss paradigms, the latter being based strongly on the accruals concept whilst the former relies on the definition and subsequent valuation of net assets in the balance sheet. The ASB (1996) counter this argument by insisting that the draft *Statement of Principles* (ASB, 1995a) merely strengthens the recognition criteria for recognising assets and liabilities on the balance sheet and has still retained the need subsequently to match the asset that has been created with its related expenditure. It emphasises that an evolutionary approach should be taken towards the adoption of current values which, it is argued, are more relevant than historic costs. Moreover, the document relegates the accruals concept to a subsidiary role in that the matching concept does not allow the recognition of items on the balance sheet that do not meet the definition of an asset, a liability or ownership interest (para. 4.34).

Apart from the initial difficulty of identifying the objectives behind discounting, an important concern is the extent to which the process could be applied in practice. One particular principle that will require to be resolved is the extent to which discounting could be applied to those assets and liabilities not fixed in monetary terms. Gamble and Cramer (1992, p.33) argue

> that cash flows associated with monetary assets and liabilities are presumed to be more readily determinable than non monetary items since they are expected to be held until maturity.

They also represent fairly discrete flows with a minimum amount of uncertainty regarding their ultimate realisation.

The difficulty about applying discounting to non-monetary assets/liabilities is that there is considerable uncertainty surrounding their final settlement. These items are affected by a number of external events such as changes in price levels as well as changes in tax and interest rates. Discounting is thus likely to be more precise in the valuation of monetary items as there is a greater degree of certainty surrounding the amount and timing of the cash flows. However, Gamble and Cramer (1992) argue that there are no sound theoretically valid arguments against the use of discounting for non-monetary assets/liabilities. There is just much more uncertainty attached to measuring their value.

Practical Difficulties in Discounting

There are several practical difficulties involved in introducing discounted cash flows into the field of financial reporting. These include: the estimation of future cash flows; the revision of cash flows with experience and changes in assumptions; the difficulty of separating out cash flows arising from common activities; and the choosing of an appropriate discount rate.

- *The Estimation of Future Cash Flows*: the estimation of future cash flows is full of uncertainty as regards both their amount and timing. However, the concept of materiality should be considered. There is not likely to be a material difference between actual receipts/payments and their present values if these cash flows occur fairly soon after the date of the initial recognition. One of the major uncertainties surrounding the estimation of cash flows is the general rate of inflation. The annual rate in the UK has varied between 2% and 26% over the last 20 years and allowance needs to be made for some form of indexation to take this into account. If cash flows are indexed, then the discount rate adopted should be nominal rather

than real or alternatively, where an estimate of future inflation is too uncertain, a real rate, i.e. a discount rate excluding inflation, should be adopted. Lovejoy et al. (1989) point out that some form of implicit discounting by preparers may already have taken place, by reducing the cash flows to smaller 'certainty equivalents' to allow for risk, but the actual extent of this is very difficult to determine in practice. The partial provision approach adopted by the Accounting Standards Committee (ASC) in SSAP 15 (ASC, 1985), where the liability for deferred taxation is restricted to the amount expected to be paid by the entity in the foreseeable future, can be seen as an example of this.

Materiality is a threshold quality according to the draft *Statement of Principles* (ASB, 1995a) and immaterial items should be excluded from consideration as they are not relevant for decision making. Amounts receivable and payable near the balance sheet date are already sufficiently close to their present values and thus the application of discounting would not result in a material change in their valuation. At the other extreme are those cash flows expected many years into the future where the present values are so small as to be immaterial from a balance sheet perspective. However, the use of discounting for these items will require large additional interest charges in future years as the discounting unwinds to face value. The main area where discounting would seem to be most critical is in the medium term where discounting clearly has a material effect and particularly where the pattern of cash flows is reasonably discrete.

Non-monetary asset/liability cash flows are not objectively determinable and thus cash flows are uncertain. Where the pattern of cash flows is uncertain then the concept of prudence would imply that discounting be applied to the earlier of any cash outflow and to the later of any cash inflow estimates.

- *The Revision of Cash Flows*: should the cash flows in a discounting calculation be altered if the original estimates of those flows change? In many fields of financial reporting original estimates are altered to take into account fresh evidence, e.g. a change in the useful life of a fixed asset under SSAP 12 to provide a fairer annual charge for depreciation. Lovejoy et al. (1989) and the ICAEW

(1989) both envisaged, however, that no change be made to original estimates unless these contained a fundamental error, or the entity has a policy of regular reappraisal of valuations, or there is a permanent impairment in the value of an asset. However, this view is not shared by the AICPA (1987). They concluded that any alterations in the timing of cash flows should be reflected in the financial statements as changes in estimates by adjusting the recorded discounted values. Clearly if the objective of discounting is to value fairly the assets and liabilities on the balance sheet then the cash flows need to be adjusted in order to achieve that objective.

- *The Difficulties of Separating Cash Flows from Common Activities*: financial accounting has been plagued by the problem of separately identifying cash flows that are the joint outcome of common activities. Lovejoy et al. (1989) recommended three separate approaches to tackling the problem: value the firm as a single asset or as a small set of independent assets (e.g. oil reserves, pension liabilities); apply discounting only to those assets and liabilities which have clearly defined 'separable' cash flows (e.g. leases, loans); and abandon the use of discounting completely in financial reporting.

  Writers such as Lee (1985), Barton (1974), Peasnell (1977) and Ijiri (1975) have already rejected the first option as being impractical while the ASC (1984) has applied the second option in relation to finance leases. The third option would seem to be an extreme rejection of the whole underlying basis of both the allocation and the valuation philosophies and there is little support for this wholesale rejection of discounting. The second approach would appear to be the only viable option whilst retaining the principle of discounting.

- *The Choice of An Appropriate Discount Rate*: the choice of an appropriate discount rate should depend largely on the effect of uncertainty on future cash flows. Obviously if the cash flows are known with certainty then it could be argued that the rate chosen should reflect the return to be received from a riskless security, e.g. a government bond. Where cash flows are uncertain, however, the determination of a 'more risky' rate is much more difficult. The rate adopted should also reflect the purpose behind the concept of discounting — for example, is it being adopted as a method of allocation or as a method of valuation of assets/liabilities?

Two very different approaches have been put forward in the literature: choosing a rate by reference to the cost of capital (Lonergan, 1992; Gamble and Cramer, 1992); and choosing a rate by reference to opportunity costs or market rates (Weil, 1990).

With respect to the cost of capital, the IRR is the discount rate that equates the initial outlay on an asset with the present value of the future cash flows. This is consistent with current accounting practice in the UK/Ireland in the application of SSAP 21 (ASC, 1984) regarding the spreading of finance costs at a constant rate of charge on the outstanding amount in the lease. Its main advantage is that it is more objective than an opportunity cost rate, especially if the cash flows are fixed or determinable, in which case the IRR can be uniquely defined.

To date the process has largely evolved as a method of ensuring that a reasonable matching of expenses to related revenues occurs, i.e. achieving the allocation objective. However, IRR cannot be used to provide a fair value for recording assets and liabilities on the balance sheet as it is essentially based on historical costs. The draft *Statement of Principles* (ASB, 1995a) regards these values as less relevant than current values. Lovejoy et al. (1989) point out that this is a serious limitation in that one of the major reasons for adopting discounting as a technique would be to provide a surrogate for the lack of market value information. They provide an example of a takeover situation where, amongst outstanding liabilities taken over, there are long-term privately-held debentures issued with a coupon rate far below or above yields on similarly traded corporate bonds. In this instance, the present value can be determined only if an external rate is available.

An alternative approach would be to select the discount rate with reference to the opportunity cost or market rate. Where discounting is being used to derive a present value it has been suggested that the appropriate discount rate should be a current rate taking into account the riskiness of the asset. AICPA's Task Force (1987) suggested the following appropriate discount rates: borrowing rates (both long- and short-term) — the rate available to the entity on unsecured debt for a similar term, or the rate on the existing debt of the entity; investment rates (long-term, short-term; risk-free, risky)

— the rate the entity can earn on investments with similar terms, or the rate earned on the entity's existing assets; and settlement rate — the market rate at the time of issue of the liability or creation of the asset. The Task Force was divided on what would be the most appropriate rate to adopt for liabilities. Some members favoured a settlement rate, others a risk-free rate. However, there was a general consensus that a settlement rate should be adopted for monetary assets, i.e. a rate which when applied to estimated future cash receipts produces a present value equal to the amount for which the debtor could be sold.

Summary of Literature Review

The literature suggests that a comprehensive discounted cash flow system of accounting is impractical, but that discounting does have a part to play in determining the valuation of certain assets/liabilities and helping to match cash inflows more correctly to related cash outflows. However, in order to meet the essential primary characteristics required by the draft *Statement of Principles* (ASB, 1995a), the cash flows should be reasonably determinable as to both their amount and timing (thereby meeting the qualitative characteristic of reliability) and the appropriate discount rate should be one interpretable in market or opportunity cost terms (thereby meeting the qualitative characteristic of relevance). There are considerable difficulties in applying the concept to more risky assets in which case a risk-adjusted discount rate could apply. However, this causes considerable controversy if the same logic is applied to liabilities since a higher rate has the effect of reducing the liabilities disclosed on the balance sheet. Prudence would dictate that the cash flows relating to liabilities be discounted at a risk-free rate but that initially the provision should be representative of the estimated cash flows adjusted to reflect risk.

THE CURRENT IMPLEMENTATION OF DISCOUNTING IN PRACTICE

Discounting has emerged in the UK/Ireland in a rather haphazard manner and it has been incorporated into a number of existing standards without much thought of ensuring consistency of treatment across the documents. It has developed at a faster pace in the USA, but again without much coherence. In the UK/Ireland discounting has been im-

plemented in five main accounting standards to date as well as in specific SORPs in the insurance and oil and gas industries:

SSAP 21	*Accounting for leases and hire purchase contracts*
SSAP 24	*Accounting for pension costs*
FRS 4	*Capital instruments*
FRS 7	*Fair values in acquisition accounting*
FRS 10	*Goodwill and intangible assets*
SORPs	*Insurance industry*
SORPs	*Oil and gas industry*

In addition it is currently being proposed in the following exposure drafts and discussion papers:

DP	*Accounting for tax*
FRED 14	*Provisions and contingencies*
FRED 15	*Impairment of fixed assets and goodwill*

- *Accounting for Leases and Hire Purchase Contracts*: one of the first applications of discounting in UK/Ireland emerged with the release of SSAP 21 (ASC, 1984) where, in relation to finance leases, lessees were required to allocate finance charges to accounting periods during the lease term so as to produce a constant periodic rate of charge on the remaining balance of the obligation due to the lessor (para. 35). Similarly, lessors were required to allocate total gross earnings to accounting periods so as to give a constant periodic rate of return on the lessor's net cash investment in the lease in each period. In addition, the standard (para. 32) states that a finance lease should initially be recorded on the balance sheet of a lessee as an asset and as an obligation to pay future rentals based on the present value of the minimum lease payments derived by discounting them at the rate of interest implicit in the lease. That implicit rate does not alter over the life of the lease and thus it is essentially a matching process for the original asset value and the finance charge over its useful life.

  The implicit rate adopted is that taken from the point of view of the lessor as it is the rate which discounts the minimum lease payments plus any unguaranteed residual value to the fair value of the asset.

However, from the lessee's point of view, the amount due shown on the balance sheet is only the present value of the minimum lease payments. There is a case for computing the asset and obligation using the lessee's borrowing rate.

In the USA, under SFAS 13 (FASB, 1976), lessees can discount minimum lease payments by their incremental borrowing rate if the implicit rate cannot be determined or if the incremental borrowing rate is more than the implicit rate. SFAS 13 also requires the asset and related obligation to be recorded at fair value if less than the present value of the minimum lease payments.

- *Accounting for Pension Costs*: under most defined benefit pension schemes, actuaries carry out triennial valuations to assess the extent to which promised benefits are covered by the existing assets in the fund. Actuaries apply discounting principles to those valuations to assess the current state of funding and to help estimate future contributions.

  Unlike leasing, pension scheme cash flows are usually held outside the business in a separate legal entity, where the time period to ultimate realisation can be very long. It is vital that the actuaries ensure that any future contributions are sufficient in the long term to meet future obligations and that these actuarial assessments are based on discounting principles. Discounting affects published financial statements under accruals accounting via the funding plan prepared by the actuary which will result in payments differing from normal funding. As a result, a deficiency or surplus may emerge that, for accounting purposes, must be spread over the remaining service lifetimes of the employees as an additional charge (or reduction in charge). SSAP 24 (ASC, 1988) does not attempt to determine an appropriate interest rate or the appropriate actuarial method of funding. A recent discussion paper (ASB,1995c), however, proposes that actuaries should adopt the projected unit approach in the future.

  In the USA, SFAS 87 (FASB, 1985) is more restrictive in that it requires much more detail about the pension plan assets, the pension benefit obligations and the discount rates adopted in making the calculations. Actuarial discount rates must be revised annually and

be based on market rates of interest, i.e. settlement rates for liabilities and average rates of earnings on investments for plan assets. The actual selection of rates is still left to the actuary's discretion. As a result the normal charge to profit and loss is likely to be more volatile than in the UK/Ireland, but this partially reflects the view in the USA that it is more important to reflect the correct liability on the balance sheet than to provide a smoothed accruals-related expense for pension costs.

- *Capital Instruments*: one of the most obvious applications of discounting is with respect to long-term financial instruments. As with pensions, the cash flows relating to such instruments are usually separable from the rest of the business; however, unlike pensions, their timing and amounts are fairly determinable. There may also be an extensive external market to determine appropriate market discount rates.

  FRS 4 (ASB, 1994a, para. 1) was published 'to ensure that financial statements provide a clear, coherent and consistent treatment of capital instruments.' Discounting has been introduced to the extent that the finance costs of debt must be allocated to periods over the term of the debt at a constant rate on the carrying amount in a similar manner to SSAP 21. An example would be the issue of Deep Discount Bonds where the coupon rates are very much below market levels at their date of issue and the bonds are issued at a substantial discount to their redemption value. It is argued that the discount is an alternative to interest and, as such, should be charged to the profit and loss by allocation to the relevant accounting periods at a constant rate on the carrying amount of the instrument. This will result in the carrying amount of the bond immediately prior to redemption equalling the amount at which it is due to be redeemed. A minority of the ASB believe that this can lead to significant distortions, particularly in cases where interest rates on long-term debt are expected to change significantly. This group argued that the costs should therefore be spread according to the term structure of interest rates implicit in the terms of the financing. The ASB rejected this on the grounds of both its complexity and subjectivity.

  In the USA, the topic has been more fully developed. The Accounting Principles Board (APB) in *Opinion 21* (FASB, 1971) in-

sists that long-term receivables and payables be discounted to present value determined either by the cash proceeds exchanged, or by an arms-length fair value, or by using an interest rate which would have resulted if an independent lender and borrower had negotiated a similar transaction under comparable terms and conditions.

- *Fair Values in Acquisition Accounting*: FRS 7 (ASB,1994b) was introduced to tidy up the fair value exercise necessary under acquisition accounting in order to fairly determine a value for goodwill. The main part of the standard concentrates on ensuring that fair values are placed on the individual assets/liabilities acquired at the date of acquisition. The ASB took the view that long-term items not bearing interest at current market rates may be materially different in value from their face or nominal value and therefore, to avoid significant distortions to reported profits, it is essential to include these items at their fair value. The ASB argues that the process of discounting is an established and widely used valuation technique in arriving at that estimate of fair value.

  The standard (para. 43) states that for asset values 'where quoted market prices are not available market prices can often be estimated, either by independent valuations, or valuation techniques such as discounting estimated future cash flows to their present values.' This is further expanded (para. 60) by stating that discounting is particularly appropriate to valuing monetary assets and liabilities. The discount rate to be applied to long-term borrowings should be calculated by reference to current lending rates for an equivalent term, the credit standing of the issuer and the nature of any security offered. For long-term debtors the rate should be based on current lending rates.

  Any differences between fair values arrived at by discounting and the total amounts receivable or payable represent discounts or premiums that should be accounted for as interest income or expense by allocating them at a constant rate based on their carrying amounts. This is consistent with the requirements of FRS 4. FRS 7 also states (para. 77) that where the settlement of any cash consideration is deferred, fair values are obtained by discounting to their present value the amounts expected to be payable in the future. The appropriate discount rate in this case is regarded as the rate at which

the acquirer could obtain similar borrowings after taking into account its credit standing and any security given.
In the USA, discounting is required under APB *Opinion 16* (FASB, 1970) to determine the fair value of loan stock issued as part of the purchase consideration and for other liabilities incurred as part of the acquisition. In addition, debtors and liabilities are to be discounted at current interest rates. Unlike the UK/Irish position, pension plans acquired are to be discounted but contingent consideration is not discounted.

- *Goodwill and Intangible Assets*: in the discussion paper *Goodwill and Intangible Assets* (ASB, 1994c), one of the possible solutions considered was to retain goodwill as an intangible asset but with the requirement to carry out an annual review as to its possible impairment in value. Two ceiling tests to ensure that the value of the investment had not declined were discussed. These were the 'DCF' test and the 'comparative' test. In both, estimates of the net present value of the acquired company were to be compared with its net fair value. Both tests proposed that cash flows after tax be discounted either at a nominal rate or, where estimated in real terms, at a real rate. The appropriate discount rate chosen was the weighted average cost of capital (WACC) of the reporting entity. The main difference between the two tests was that the former was prepared *ex ante* and the latter *ex post* the cash flows occurring.

  A further working paper with the same title was released in July 1995 and this was largely incorporated in FRED 12 *Goodwill and Intangible Assets* in June 1996 (ASB, 1996). The use of the WACC was retained, but adjusted to take into account the specific risk factors pertaining to what are termed 'income generating units'. The individual discount rates should, however, average to the WACC for the reporting entity as a whole. These ideas, together with a similar calculation for tangible fixed assets, have been incorporated in a recent exposure draft, FRED 15 *Impairment of Fixed Assets and Goodwill* (ASB, 1997b). The standard itself, FRS 10 *Goodwill and Intangible Assets* (ASB, 1997d), does not include the impairment rules but refers back to FRED 15 for guidance.

  In the USA, goodwill is simply amortised to the profit and loss account over its economic useful life with a maximum write off pe-

riod of 40 years. Discounting has not been introduced to the impairment exercise. However, the FASB (1995) has recently published FAS 121 *Accounting for the Impairment of Long Lived Assets and for Long Lived Assets to be Disposed Of* which requires reporting entities to calculate the present value of discounted cash flows in a manner similar to FRED 15 if a suitable market value is not available.

- *Insurance Industry*: in many ways the insurance industry is similar to the area of pensions in that very long-term horizons are involved. There is a case for discounting in situations where claims can arise up to several years after the receipt of premiums and settlements may be even further delayed. The insurance industry does not preclude discounting but believes that the benefits probably do not outweigh the costs of using it. If discounting is adopted, the rate used should not exceed a 'conservative estimate of the rate of investment income which the enterprise considers is most likely to be earned on its investment portfolio over the term during which the claims are to be settled' (Lovejoy et al., 1989, p.35). The recent SORP (referred to in Lovejoy et al.) requires that where discounting is adopted, that fact should be made explicit.

  In the USA, SFAS 60 (FASB, 1982) requires that a liability for expected cost under a long-duration (e.g. life) contract be accrued and this be based on the present value of estimated future policy benefits less the present value of estimated future premiums to be collected. The discounting calculations should be based on estimates of investment yields expected at the time the contracts are entered into. There is no mandatory requirement to discount short-term business, but it is permitted and full disclosure is required of the range of discount rates adopted and the amount of any such discounted provisions.

- *Oil Industry*: in the UK/Ireland a number of SORPs have been published on the unique accounting problems faced by the oil industry. However, in all cases the introduction of discounting has been prohibited. This ban has been particularly emphasised in relation to: the ceiling tests required under full-cost accounting to determine whether or not any impairment has occurred; the valuation of oil

and gas reserves; and the creation of provisions for abandonment costs.

Abandonment costs have also been investigated by the ASB in the FRED on provisions and contingencies (ASB, 1997a) and, in contrast to the Oil Industry Accounting Committee, FRED 14 has recommended the discounting of provisions for these costs. It recognises that in subsequent years the charge to profit and loss will become progressively larger as the discounting unwinds. The logic is that resources which could perhaps have been spent on the abandonment costs have in fact been invested elsewhere and earned a return that should increase over time. That increased income should be matched with the increasing charge for abandonment and these should cancel each other out.

There has been much more development in the USA. The Securities and Exchange Commission attempted to launch what was termed 'Reserve Recognition Accounting' to incorporate oil and gas reserves into the primary financial statements, but this was discontinued after three years because of major implementation problems. However, reserve recognition accounting is still included as a footnote. It requires the valuation to be determined by a standardised present value calculation, with future cash flows to be derived from the oil reserves discounted at a fixed rate of 10% based on year-end prices and existing economic conditions. The argument for this approach is that the critical event in earning income and controlling resources in the industry is the actual discovery of oil reserves rather than their extraction and subsequent sale. Because of the uncertainty of oil prices, however, the UK decided not to require a similar calculation but instead to recommend a statement of the quantity of oil and gas reserves. In the USA, also, discounting has been retained with the use of ceiling tests to determine whether or not a permanent diminution in the value of fixed assets has occurred.

- *Accounting For Deferred Tax*: Discounting has become a major issue in the revision of SSAP 15 *Accounting for Deferred Taxation*. A recent discussion paper (ASB, 1995b) has proposed changing the accounting treatment of deferred taxation from the current partial provision to a full provision basis in order to bring the accounting treatment closer to international developments and to the ASB's

own draft *Statement of Principles* (ASB,1995a). However, with the existing system of capital allowances and the continual rolling over of reversing timing by new originating timing differences, the tax may not become payable for many years. Therefore, in order to mitigate the impact of the liabilities on the balance sheet, the ASB is proposing the introduction of discounting for deferred taxation balances.

The discussion paper explains the validity of discounting deferred tax in detail and sets out two views of the nature of the tax. One is that deferred tax represents the amount by which future tax assessments will be increased or decreased as a result of cumulative timing differences at the year end. The alternative view is that deferred tax is a 'valuation adjustment' to the carrying value of the assets/liabilities on the balance sheet. The ASB argues that if the former view is taken, then deferred tax represents an increase or decrease in future cash flows and thus can be discounted. On the other hand, if it is a valuation adjustment and if its attached asset/liability is not itself discounted, then neither should the associated tax effect. The ASB has left the final decision open pending comments from interested parties.

The ASB investigated several possible discount rates and decided, mainly to simplify the approach, that deferred tax should be discounted at the effective rate of a government bond appropriate to the tax jurisdiction concerned, rather than at an entity-specific rate. The discussion paper has also set out the methodology of discounting deferred tax whereby it would be deemed to be paid as the originating timing differences reverse. The ASB is in favour of its introduction but only if widespread support emerged for it in comments received on the paper. Discounting will either be required or banned; it will not be an optional feature of the new standard.

In the USA, there are no standards covering the use of discounting for deferred tax purposes, although strong support for its implementation exists in the academic literature (Nurnberg, 1972; Rayburn, 1987; Stepp, 1985).

- *Provisions and Contingencies*: discounting has also been discussed in the ASB's exposure draft on provisions and contingencies (ASB,

1997a). It is argued in the exposure draft that a liability that will not result in expenditure for some time is less onerous than one that will result in equivalent expenditure in the near future. If discounting results in a materially different figure from the original non-discounted estimate, then this should be reported in the financial statements.

The ASB proposes that a risk-free government bond rate be adopted in line with the discussion paper on tax. The FRED also allows the original estimates for cash flows to be revised to ensure that the provision is neither under- nor over-stated. The forecast cash flows can be either the actual flows discounted at a nominal rate or at current prices discounted at real rates. It is recognised under the latter approach, however, that the amount of the provision would need to be increased each year to reflect both the amortisation of the discount and any price increases. The amortisation of the discount should be charged to profit and loss account each year. There is no equivalent regulation in the USA.

Summary of Current Practice

Clearly discounting has gradually filtered its way through into UK/Irish reporting practice over recent years, but in a very haphazard manner with very little consistency across the various recommendations. Discounting has developed at a faster pace in the USA, but here also no overall approach has emerged. In addition, the rules in the USA tend to be mandatory as compared with the more voluntary approach adopted in these islands.

There are, however, a number of common strands which should help to identify a more comprehensive approach to the application of discounting techniques in financial reporting. In relation to the discount rates suggested, the use of an implicit rate of return such as the IRR would appear to be appropriate if the objective of discounting is to allocate costs against their related revenues. For example, in lessee accounting the main objective has been to fairly allocate the finance cost of a finance lease against the cash flows generated from using that asset. It is essentially an allocation technique and there is no need to identify alternative opportunity cost rates. A similar situation also emerges in pension cost accounting.

If, alternatively, the accounting objective is to fairly value assets and liabilities then more market-based discount rates need to be adopted and these should be updated regularly as circumstances change. In the USA this is the case in pension cost accounting where determination of the asset/liability is given priority to the spreading objective found in the ASB's standard. It has also been adopted by the ASB itself in evaluating long-term liabilities at the point of acquisition. In the valuation of liabilities there are clear patterns emerging of the adoption of a risk-free rate in those situations where the timing and amounts of liabilities are discrete.

Discounting would appear to be more relevant to those specific industries which display a number of long-term assets/liabilities on their balance sheets and where there is a need to find a 'fair value' for the net resources controlled by the entity. This is the case with insurance and financial services, oil, gas and other natural resource industries, and pension funds. Discounting is more important generally for certain classes of assets and liabilities, particularly long-term monetary items such as finance leases, long-term liabilities and provisions, capital instruments and pensions.

One of the major problems emerging is the lack of a definitive rate of discount. The rules vary from adopting a risk-free government bond rate, to a WACC, to a specific market rate and even in the USA to the use of a completely arbitrary rate of 10% in the valuation of oil and gas reserves. There is also very little consistency as to whether or not any revisions can be made to the original estimates of the cash flows or whether or not the discount rate itself should be altered as conditions change. This is probably because the standards have failed to spell out clearly the accounting objective when discounting is introduced to financial reporting.

FRAMEWORK FOR A FUTURE STATEMENT OF BEST PRACTICE

The haphazard manner in which discounting has evolved in recent years in financial reporting is clearly unsatisfactory. It has been allowed to infiltrate in an *ad hoc* manner with little or no conceptual justification for its inclusion. The literature would suggest that there is a clear

role for discounting in certain aspects of financial reporting but these should be clearly spelt out in a separate statement of best practice or as an addendum/appendix to a publication such as the draft *Statement of Principles* (ASB, 1995a). A future statement should identify the most appropriate areas in which discounting should apply and ensure that there is consistency of accounting treatment from application to application. Some of these problems have already been addressed in TR 773 (ICAEW, 1989) and the ASB's working paper (ASB, 1997c). The possible content of a future statement might include the following:

- The objectives of discounting in financial reporting
- The identification of general application rules including guidance notes on specific issues
- The methodology to be adopted in the process of discounting with respect to:
  - ◊ the estimation of future cash flows
  - ◊ the timing of and changes to estimates of future cash flows
  - ◊ the adoption of an appropriate discount rate and changes therein
- The disclosures required.

A similar approach to that of FRS 5 *Reporting the Substance of Transactions* (ASB, 1994d) should be adopted by incorporating broad general principles only in the body of the statement whilst leaving more specific applications to an appendix.

The Objectives of Discounting in Financial Reporting

Discounting has a role to play in external reporting. However, there has been no consensus to date on the content of a comprehensive accounting model based on the principles evolved by Hicks. Accordingly, the use of discounting should be developed through a statement of best practice or through a supplement to the draft *Statement of Principles* (ASB, 1995a). Its main objective should be assurance that those assets/liabilities with determinate cash flows are being recorded at their fair values on the balance sheet. This would be in line with the draft *Statement of Principles*. Before being recorded as assets/liabilities, the receipt or transfer of future economic benefits would need, however, to pass the recognition tests and qualify under the definitions in the *Statement of Principles*. As a subsidiary objective, discounting could also be adopted as an allocation mechanism, to ensure that a proper

matching of income and related expenditure occurs during an accounting period. Consideration must be given to the *Statement of Principles* which recognises that the twin objectives of allocation and valuation are not mutually exclusive. It subordinates the allocation to the valuation objective in situations where the two concepts clash.

The Identification of General Application Rules including Guidance on Specific Accounting Issues.

A decision would have to be taken as to whether or not discounting could apply to non-monetary assets and liabilities or whether it should be confined to monetary items alone. The latter usually give rise to determinate discrete flows where uncertainty is minimised. However, discounting has already been applied to flows which are less certain, for example in the case of pensions accounting and with the calculation of oil and gas reserves. If the ASB were to agree to a broader definition, then consideration should be given to incorporating the prudence concept into the estimation of cash flows by taking a more critical look at inflows than at outflows. However, there does not seem to be any conceptual justification in favour of restricting the use of discounting only to determinate discrete cash flows.

It would be very useful for the ASB to provide guidance notes on how to apply the concept to specific applications, in the manner of FRSs 4 and 5. These could be published in an appendix, whilst at the same time retaining the general principles as the core guidance in the heart of the standard itself.

The Methodology to be Adopted in the Process of Discounting in Financial Accounting

- *The Amount of the Cash Flows*: uncertainty is a pervasive problem in financial reporting, but there are additional complexities in relation to discounting. Future cash flows may well be subject to inflation and it is important that allowance is made for some form of indexation of those flows and a money rate of discounting adopted. If indexation is not possible, or not undertaken, then a real rate of discount should be employed instead. The standard should insist that all flows are the expected gross flows and that no element of implicit discounting has taken place.

- *The Timing of and Changes to Expected Cash Flows*: the timing of most monetary assets and liabilities is known in advance and uncertainty of flows is not a problem. However, if discounting is to be extended to uncertain monetary assets/liabilities as well as to non-monetary items, then the concept of prudence should be applied. For example, the timings for cash outflows should be assumed to be the earliest of the estimates and the timings of the cash inflows should be assumed to tend towards the later of the estimates.

  It should also be agreed that at the short end of the spectrum discounting ought not to be adopted as it would not result in material changes to the valuation of assets/liabilities. In the short term the effect of discounting is so small that present values are virtually at the same value as the original asset/liability recorded. It should be emphasised that it is the flows in the medium term that demand greatest attention.

  Changes in original estimates of cash flows should be allowed as otherwise the assets/liabilities would no longer provide a true and fair valuation. A change in estimate should be recorded in the year of change but it is not a fundamental error nor a change in accounting policy so it should be treated as a normal adjustment and the effect of the change disclosed in the year of the change.

- *The Adoption of an Appropriate Discount Rate and Changes Therein*: this is likely to be the most contentious issue in formulating an agreed approach. Clearly the literature would favour the use of market-based or opportunity-cost rates if the main objective of the process is to value assets/liabilities more fairly. On the other hand, if allocation of the original cost is the objective then the IRR would be more appropriate. However, there does not seem to be significant support for the use of an arbitrary rate as it fails both to match the cost of a specific asset/liability against its future benefits and to place an accurate valuation on that asset/liability.

  In looking at current rates, it would appear that in order to report the substance of the transaction a reporting entity should adopt a rate that takes into account the riskiness of the specific asset and the related costs of available finance. A WACC would not seem to be particularly pertinent in these circumstances. However, if the avail-

able funds were limited (possibly because of capital rationing) then an opportunity-cost rate would be the more appropriate as it takes into account the return on the next best alternative project. If there is very little or no risk involved, then it would be appropriate to adopt a riskless rate such as that recommended in FRS 4 (i.e. a government bond rate).

There is considerable disagreement as to whether or not the original discount rate should be altered as circumstances change. Clearly from an allocation viewpoint it should not as the process is one of matching the original cost fixed at a particular moment in time over the period of the asset's life. However, if it is being used as a valuation procedure then it could be argued that this is a change in accounting estimate and it should be accounted for accordingly. In terms of assets, clearly an increase in discount rate will result in a lower valuation of that asset (as it would with liabilities). This gives rise to an accounting anomaly when interest rates go up, because liabilities will fall and this is against the prudence concept. There may well be a case for permitting downward adjustments to assets but not to liabilities, but only if prudence is still to be regarded as a fundamental concept. The *Statement of Principles* (ASB, 1995a) would seem to reject this and accordingly liabilities should be reduced if interest rates were to rise.

The Disclosures Required

As a minimum, the following would appear to be essential in order for the reader of the annual report to understand fully the impact of discounting on the financial statements:

- The accounting policy adopted
- For each class of asset/liability to which discounting has been applied:
  - ◊ the discount rate adopted
  - ◊ the timescale of the cash flows
  - ◊ the balance sheet value of items that have been subject to discounting together with their undiscounted amounts.
  - ◊ any changes in previous estimates and their financial effect
- Separate disclosure of the discounting effect in the notes to the accounts

CONCLUSION

Discounting has an important role to play in financial reporting. It is unlikely that the process can be developed into a full practical 'Economic Income' model whereby all assets and liabilities are evaluated in terms of present values. The issue of discounting can only be resolved within the context of the recognition and measurement principles contained in the draft *Statement of Principles* (ASB, 1995a) and in particular those on the valuation and measurement of assets and liabilities. Discounting will be extremely valuable in the assessment of fair values on the balance sheet, an issue which has particular importance as the ASB moves to introduce more relevant and up-to-date information on the balance sheet. It also fits in with the ASB's move away from the accruals-based profit and loss account to the balance sheet paradigm, the latter reflecting an entity's control over its resources and obligations rather than the previous emphasis on matching income with related expenditure.

The ASB should develop a statement of best practice or alternatively a supplement to the draft *Statement of Principles* on the extent to which discounting can be implemented in financial reporting before developing the concept any further in existing or proposed standards. It is important to ensure consistency across all accounting standards in which discounting plays a role.

However, it will also require a greater understanding of the concept of discounting amongst members of the accounting profession and, therefore, more education of accountants in the application of discounted cash flow techniques will be needed. It is also a concept which may take the main users of financial statements, the shareholders, some time to get accustomed to. As Milburn (1988, p. 256) concludes in his study:

> There is likely to be some resistance to the fundamental changes proposed in this study, and many may be inclined to reject them without full and fair consideration. Thus, significant efforts may be needed to ensure that the basic propositions and their underlying presumptions and implications are widely exposed and debated. The present value approach must be understood and generally accepted by critical interests within the accounting profession if it is to be an effective

basis for redeveloping the accounting framework. This acceptance may only be achieved if the framework is seen to be viable in the face of the most rigorous criticisms that can be levelled against it!

REFERENCES

Accounting Standards Board (ASB) (1994a). Financial Reporting Standard (FRS) 4 *Capital Instruments*, London: ASB.

ASB (1994b). FRS 7 *Fair Values In Acquisition Accounting*, London: ASB.

ASB (1994c). Discussion Paper (DP) *Goodwill and Intangible Assets*, London: ASB.

ASB (1994d). FRS 5 *Reporting the Substance of Transactions*, London: ASB.

ASB (1995a). Exposure Draft (ED) *Statement of Principles*, London: ASB.

ASB (1995b). DP, *Accounting for Tax*, London: ASB.

ASB (1995c). DP, *Pension Costs in the Employer's Financial Statements*, London: ASB.

ASB (1996). Financial Reporting Exposure Draft (FRED) 12 *Goodwill and Intangible Assets*, London: ASB.

ASB (1997a). FRED 14 *Provisions and Contingencies*, London: ASB.

ASB (1997b). FRED 15 *Impairment of Fixed Assets and Goodwill*, London: ASB.

ASB (1997c). Working Paper (WP) *Discounting in Financial Reporting*, London: ASB.

ASB (1997d). FRS 10 *Goodwill and Intangible Assets*, London: ASB

Accounting Standards Committee (ASC) (1980). Statement of Standard Accounting Practice (SSAP) 16 *Current Cost Accounting*, London: ASC.

ASC (1984). SSAP 21 *Accounting for Leases and Hire Purchase Contracts*, London: ASC.

ASC (1985). SSAP 15 *Accounting for Deferred Tax*, London: ASC.

ASC (1988). SSAP 24 *Accounting For Pension Costs*, London: ASC.

American Institute of Certified Public Accountants (AICPA) (1987). *The Use of Discounting in Financial Reporting for Monetary Items with Uncertain Terms Other Than Those Covered by Existing Authoritative Literature, Report of the Task Force on Discounting Applications*, New York: AICPA.

Barton, A.D. (1974). 'Expectations and Achievements in Income Theory', *The Accounting Review*, Vol. 49, No. 4, October, pp. 664-81.

Drury, C. (1992). *Management and Cost Accounting* (3rd edition), London: Chapman and Hall.

Ernst & Young (1993). *The Future Direction of UK Financial Reporting*, London: Ernst & Young.

Financial Accounting Standards Board (FASB) (1970). Accounting Principles Board (APB) 16 *Business Combinations*, Connecticut: FASB.

FASB (1971). APB 21 *Interest on Receivables and Payables*, Connecticut: FASB.

FASB (1976). Statement of Financial Accounting Standard (SFAS) 13 *Accounting for Leases*, Connecticut: FASB.

FASB (1982). SFAS 60 *Accounting and Reporting By Insurance Enterprises*, Connecticut: FASB.

FASB (1985). SFAS 87 *Employers' Accounting for Pensions*, Connecticut: FASB.

FASB (1995). SFAS 121 *Accounting for the Impairment of Long Lived Assets and for Long Lived Assets to be Disposed Of*, Connecticut: FASB.

Fisher, I. (1906). *The Nature of Capital and Income*, New York: Macmillan. (Reprinted as 'Income and Capital', in Parker and Harcourt, 1969).

Gamble, G.O. and. Cramer, J.J. (1992). 'The Role of Present Value in the Measurement and Recording of Non-monetary Assets and Liabilities: An Examination', *Accounting Horizons*, Vol. 6, No. 4, December, pp. 32-41.

Hicks, J. (1946). *Value and Capital*, Oxford: Clarendon Press. (Reprinted as 'Income' in Parker and Harcourt, 1969).

Institute of Chartered Accountants in England and Wales (ICAEW) (1989), Technical Release 773, Discussion Paper, *The Use of Discounting in Financial Statements*, London: ICAEW.

Ijiri, Y (1975). *Theory of Accounting Measurement*, Sarasota: American Accounting Association.

Lee, T. A. (1985). *Income and Value Measurement: Theory and Practice* (3rd Edition), London: Van Nostrand Rheinhold.

Lonergan, W. (1992). 'AASB 1010 and Recoverable Amount Test: Let's Get Serious', *Charter*, Vol. 63, No. 2, March, pp. 42-46.

Lovejoy, C., Peasnell, K., Taylor, P. and Y. Talukar, (1989). *Discounting in Corporate Financial Reporting*, London: ICAEW.

Milburn, J. A. (1988). *Incorporating the Time Value of Money Within Financial Accounting*, Toronto: The Canadian Institute of Chartered Accountants.

Nurnberg, H. (1972). 'Discounting Deferred Tax Liabilities', *The Accounting Review*, Vol. 47, No. 4, October, pp. 655-665.

Parker, A.H. and Harcourt, G.C. (eds.). *Readings in the Concept of Measurement of Income*, Cambridge: Cambridge University Press.

Peasnell, K.V. (1977). 'A Note on the discounted present value concept', *The Accounting Review*, Vol. 52, No. 1, January, pp. 186-189.

Rayburn, F.R. (1987). 'Discounting of Deferred Income Taxes: An Argument for Reconsideration', *Accounting Horizons*, Vol. 1, No. 1, March, pp. 43-49.

Rohen, J. (1974). 'A Test of the Feasibility of Preparing Discounted Cash Flow Accounting Statements', in J.J. Cramer, and G.H. Sorter, (eds.) *Objectives of Financial Statements*, Vol. 2 (AICPA), pp. 202-211.

Stepp, J.O. (1985). 'Deferred Taxes: The Discounting Controversies', *Journal of Accountancy*, Vol. 160, No. 5, November, pp. 98-108.

Weil, R.L. (1990). 'Role of the Time Value of Money in Financial Reporting,' *Accounting Horizons*, Vol. 4 , No. 4, December, pp. 47-67.