

Accounting for insurance contracts: a comment on ‘deprival value’ measurement for contract liabilities in revenue recognition

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APPENDIX

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1) Introduction

‘Matters of revenue recognition can conflict with liability recognition’ (*The FASB Report*, No. 232, May 31, 2002, p.17). There may be several reasons for the stated conflict.¹ But there are also conflicts over measurement and the aim of this comment is to indicate why a major conflict must persist in the case of all contracts where payment by customers is made in advance of delivery of services,² given the current approach to accounting for self-generated as well as many purchased intangibles. Examples of such contracts include ‘magazine subscription contracts’ and ‘insurance contracts’ (both short and long-term). At its May 2002 meeting, the IASB debated short-term insurance contracts.³ We also ask how far the application of ‘deprival value’ rather than ‘fair value’ reasoning in the measurement of contract liabilities can help to resolve the apparent conflict.

To illustrate the problem we first take a simplified imaginary example of an enterprise (‘Revrec Inc.’) with a December 31st year-end that receives annual magazine subscriptions for 12 monthly issues of *The Yachtie*, a magazine for sailing enthusiasts. Assuming subscriptions are even through the year there will on average be six-months’ subscriptions paid in advance at the year end.⁴ We can therefore simplify the problem by focussing on a ‘typical’ contract where the subscription is paid on 1st July for 12 months’ magazine issues, to be delivered at the end of each month. By the end of December the company will have delivered 6 issues and be liable to deliver 6 more.⁵

In the following sections we briefly develop various market scenarios⁶ and consider where ‘asset/liability’ accounting and ‘revenue recognition’ accounting lead us and how and why a ‘conflict’ between the two approaches may appear. Finally we comment on the possibilities for how the apparent conflict may be resolved.

2) A simple example

Insert Table II about here

Assume first that Revrec Inc. faces a fully competitive market (where sailors regard all yachting magazines as substitutes) and so Revrec has to compete on price and its

contract is therefore priced to be just worthwhile undertaking. Here, the traditional approach of ‘deferring’ the recognition of revenue in proportion to the number of months remaining on the contract ought, if proper allowance for time and risk is made, to result in deferring the same amount as would be estimated as the liability for remaining performance under the contract (i.e. the costs, time and risk for production and delivery of the remaining magazine issues). For the first, very simple scenario, we shall assume no risk nor time-value of money, and that all costs may be regarded as production costs. Let unit production cost⁷ per issue of the magazine be \$10. Assume production costs are incurred at the end of each month and that delivery to customers is then instantaneous and costless.⁸ How much can the publisher charge in a competitive market for a year’s subscription?

Solution 1: Given costs are \$10 per issue and a year’s subscription covers 12 issues, then the competitive price for a year’s subscription is \$120. Assuming the customer has paid \$120 in advance, then at December 31st both the ‘unearned revenue’ and ‘liability to produce and deliver 6 more issues’ are \$60 and there is no conflict between the ‘revenue recognition’ and the ‘asset/liability’ approach. Profit is revenue earned less cost incurred ($\$60 - \$60 = \$0$), the standard result from conventional microeconomics that in long-run equilibrium only factor costs are covered in fully competitive markets (e.g. Katz and Rosen, 1998).

3) ‘Normal profit’: interest

Conventional microeconomics does however recognise that ‘capital’ must earn its required rate of return and this is as much a ‘cost’ of production as materials, labour, use of equipment, etc. Capital is rewarded both for time between investment and return (‘interest’) and for risk bearing. Continuing for the moment to assume no risk, we nevertheless clearly do need to allow for interest.

Solution 2: Assume interest is 1% per month.⁹ Production etc. costs are \$10 per issue; a year’s subscription covers 12 issues therefore the competitive price for a year’s subscription paid in advance is the amount equivalent in present value to 12 future monthly receipts of \$10 each, namely \$112.55—a ‘discount’ of \$7.45 to the customer for paying annually instead of individually for each instalment as it is delivered. Assuming the customer has therefore initially paid \$112.55 on July 1st, then at December 31st the conventional accounting allocation of the revenue under present-day GAAP would be half to each 6-month period, i.e. \$56.275, while both the cost to date and the ‘liability to produce and deliver 6 more issues’ appear *prima facie* to be \$60, indicating a loss of \$7.45 (i.e. making provision now for the loss to come in the second six months).¹⁰ However, we need to recognise the interest effect and then there will still be no conflict between the ‘revenue recognition’ and the ‘asset/liability’ approach. Earned revenue in total is the price of the first six instalments plus interest on the assets held to date (i.e. $\$60 + \5.40), while expenditure is also the cost of the first six instalments plus interest (i.e. ‘unwind of the discount’ on the liability)¹¹ to date (i.e. $\$60 + \5.40), which again gives the standard ‘competitive’ result from conventional microeconomics of an overall net income of zero. As all the finance has been provided by the customer, and there is no risk, the equity owners have contributed nothing and so have properly earned nothing.¹² The year-end liability is the remaining obligation to incur the second six months costs of \$10 per month, which is not \$60 but the present value of $6 * \$10 = \57.95 .¹³ So there is here still no conflict between the ‘asset/liability’ and ‘revenue recognition’ approaches.

4) ‘Normal profit’: risk bearing.

We can make a simplified allowance for risk by assuming that the magazine price of \$10 can be charged in a competitive market because, although expected production costs per issue are, for example, only \$9.50, a risk premium of \$0.50 per issue is also needed to cover the risk that the costs may turn out to be higher. Equity owners bear this risk and need to be rewarded for it.¹⁴ Even without introducing more complicated structure to the example (e.g. stochastic outcomes and the amount of equity capital needed to ensure solvency), it is nevertheless clear that if each magazine issue can be sold competitively for \$10 and costs do in fact actually turn out ‘as expected’, i.e. \$9.50 per issue, then Revrec will earn \$6 profit over a year as its reward for risk bearing.

Adding in the interest factor as above, the one-year subscription price is still \$112.55.¹⁵ How much is the initial liability?

Revrec expects to incur 12 issue costs of \$9.50 per month, giving a present value of only \$106.92, which appears *prima facie* to imply an NPV for this activity of \$5.63. Has Revrec earned a ‘profit on inception of the contract’ of \$5.63? Clearly not: the competitive reward for risk bearing will be ‘earned’ as each issue is successfully produced for only \$9.50, and the profit needs to ‘emerge’ during the life of the contract, so that half of the total (i.e. \$3) will be earned by December 31st.

We therefore need to adjust for risk in estimating the initial liability, either by using a ‘risk-adjusted discount rate’ (as opposed to the 1% per month ‘risk-free’ rate), or more straightforwardly here (and as increasingly recommended by accounting standard setters (e.g. see Trott and Upton, 2001; FASB, 2004), by estimating the ‘certainty equivalents’ of the future cost estimates and discounting these at the risk-free rate.

Solution 3: As the expected cost is \$9.50 per issue of the magazine, and given that we have assumed the risk premium to be \$0.50 per issue, the ‘certainty equivalent’ of the cost of each issue is \$10. Discounting the initial liability to the customer to produce twelve issues therefore produces the same original \$112.55 and there is no ‘profit on inception’. The \$112.55 could be analysed into a provision for expected costs to be incurred of \$106.92 and a provision for risk of \$5.63.

By December 31st, the liability is again down to \$57.95 (comprising a provision for expected remaining costs to be incurred of \$55.05 and a provision for remaining risk of \$2.90). But now we shall have only had to ‘call off’ an amount equal to the production cost of \$9.50 as each of the first six monthly issues was produced. We therefore also need to recognise a release of the ‘provision for risk’ amounting to \$3 for the first six months of the contract.¹⁶ If everything goes to plan in the second six months Revrec will again earn another \$3 for risk-bearing in that financial year.

5) Uncompetitive markets: premium pricing

So far we have assumed a fully competitive market, where customers regard different yachting magazine titles as perfect substitutes and simply buy the cheapest. But publishers seek to differentiate the perceived quality of their titles, so that customers will pay a premium price for the ‘masthead’ if people regard *The Yachtie* as superior to other yachting magazines. Revrec will thereby be able to earn more than a competitive rate of return. Now the deferral of revenue from advance subscriptions for the months remaining will include an element representing deferral of recognition of the realization of the value of the corresponding ‘intangible’ (the ‘masthead’) that is included in the price charged in the up-front subscription payment. Is this deferred revenue a ‘liability’? At first sight it seems hard to see how it can be.

If we build on our previous example let us suppose Revrec can charge a 'premium' price of \$11 per issue of *The Yachtie*, against the expected costs of \$9.50 per issue and allowance for risk of \$0.50. Expected profit over the contract is now \$18 (\$132 revenue less \$114 production cost), including as before \$6 reward for risk-bearing.

With the same interest cost of 1% per month, and making the same allowance for risk, the net present value ('NPV') from undertaking the contract is the present value of the 12 monthly 'super-profits' of \$1, i.e. \$11.26.

If the customer bought the 12 issues of the magazine as separate monthly purchases, Revrec would make profits (including reward for risk bearing) of \$1.50 per month, totalling \$9 up to December 31st, and another \$9 in the first half of the next financial year. The discounted price charged to the customer who pays in advance for a year's supply of the magazines is now the present value of 12 instalments of \$11 = \$123.81. At inception this is the 'deferred revenue', while the (risk-adjusted) liability for future costs is still only \$112.55. So now a difference has appeared between the 'asset/liability' approach and the 'revenue recognition approach' whereby the former appears to suggest recognition of a profit on inception of \$11.26, i.e. the NPV of the contract.¹⁷

Correspondingly, if we look at the position at the accounting year-end, half way through the contract (and still assuming outcomes in line with expectations), the 'deferred revenue' then would now be the present value of the remaining 6 instalments of \$11 = \$63.75 while the (risk-adjusted) liability would now be down to \$57.95. So if we adopt the 'revenue recognition approach' we will still carry an 'excess provision' of \$5.80 at December 31st (i.e. the present value then of the remaining 6 monthly 'super-profits' of \$1).

What are the corresponding patterns of reported income? The simple intuition is that, compared with the previous example, total profits over the life of the contract increase from \$6 (the reward for risk bearing) to \$18 (i.e. including the 'super-profits' of \$1 per issue).

Tentative solution 4a: Under the 'revenue recognition approach' profits will therefore total \$9 in the first six-months (\$3 for release from risk and \$6 'super profits') and \$9 in the second six months, again a total of \$18.¹⁸

Tentative solution 4b: Under the 'asset/liability' approach, if we initially take all the \$11.26 'profit on contract inception' into the first six-months' reported earnings, there will then be further earnings for that period of \$3 (the reward for risk bearing in that period), giving a total of \$14.26 and leaving a further \$3 to be earned similarly in the second six-months of the contract. Total earnings over the contract life will be \$17.26. Note however that these calculations are based on assuming that the initial profit on inception is distributed immediately, with only the remaining 'normal' profits (\$0.50 per month) distributed monthly as before. If the initial profit is *recognised* immediately, but is only *distributed* in the same pattern as under the 'revenue recognition' approach (i.e. an extra \$1 each month), Revrec will earn interest in the same way as before. The undistributed NPV amount, net of distributions subsequently made monthly during the period, will then be down to \$5.80 by December 31st. However, as the liability initially is only \$112.55 (and is down to \$57.95 by 31st December), 'unwind of the discount' will be lower than in the corresponding 'deferred revenue' accounts, giving further reported net earnings in the first six months of \$0.54 and in the second six months of \$0.20. Total earnings over the life of the contract will then again be [$\$17.26 + 0.54 + 0.20$] = \$18, split \$14.80 to the first six months and \$3.20 to the second six months.¹⁹

So in this situation we appear to have no clear ‘*Solution 4*’. While the total contract income is clearly \$18, the two approaches now produce very different patterns for reporting the income in each of the two half-years. The asset/liability approach apparently heavily ‘front-loads’ the total profit into the first accounting period (favoured by Nobes, 2003) as compared to the ‘revenue recognition’ approach, familiar from most present-day GAAP, which allocates equal amounts to each sub-period. Can we say which is ‘correct’?

6) Choosing a pattern of profit recognition

We must first note that, in these examples, the ‘problem’ only relates to how to report the ‘super-profits’. Both accounting approaches, as we have already seen, report ‘normal’ profits (i.e. interest and reward for risk) on the same pattern. By what criteria should standard setters judge the appropriate pattern for reporting the ‘super-profits’?

Solution 5 (a ‘market’ solution). If Revrec’s contract to supply *The Yachtie* were fully comparable to other contracts for which there is a good market, one would expect other publishers to be willing to pay up to \$11.26 on July 1st to take over Revrec’s new contract (including the assets acquired from the advance subscription), assuming that this arrangement is equally acceptable to the magazine’s customer. At this price expected super-profit to the acquirer will be zero, but the acquirer (who has taken over the risk) will expect to earn \$0.50 profit per month as a reward for risk-bearing. Overall profit will only be \$6 as the cost of acquisition will have to be amortized against the extra revenue of \$1 per issue (which has a present value of \$11.26, equal to the cost of acquiring the contract). By selling the right to the contract immediately on inception Revrec could therefore realise the pattern of profit implied by the ‘asset/liability’ approach: and if the market for such contracts is deep enough, it may therefore be regarded as legitimate for Revrec to ‘mark to market’ its contract even if it does not actually transfer it, and report the \$11.26 initial profit at the date of inception, and only the remainder of the \$18 thereafter as risk is released.

An alternative, but equivalent²⁰ way of looking at the outcome is to say that the ‘fair value’ (as apparently defined in FASB, 2004) of Revrec’s contract liability is only \$112.55 as this is the amount it would have to pay another publisher to take over the contract: it would therefore be able to keep \$11.26 out of the original subscription received.²¹

Solution 6 (an ‘M&A’ solution). There is a takeover market for corporate enterprises as well as for their underlying businesses. In a well-informed and competitive takeover market an acquirer should be willing to pay up to \$11.26 to acquire Revrec on July 1st. The acquirer will then receive profits totalling \$18, but will have to amortize its acquisition cost against these, leaving it with post-acquisition net profits of only \$6, reflecting the ‘normal’ reward for the underlying business risks taken over.²²

The amount paid for the acquisition of Revrec Inc. will however be likely to take into account not only the inherent profitability of existing contracts but also expectations of similar profits from future contracts. If Revrec enjoys a market advantage that gives it ‘super-profits’, the key question from the point of view of the acquirer is ‘how long will the advantage last’? It may be protected by some registration of a trademark for a number of years, or may represent only a short-lived ‘first-mover’ advantage over competitors (see e.g. Ohlson, 1995), or, at the other extreme, some market

barrier that is expected to be maintained virtually permanently (e.g. due to regulatory requirements for entry to the industry, as perhaps in the case of insurance companies). The amount paid for this 'goodwill' will therefore reflect more than the 'super-profits' inherent simply in the current contract. In itself this is not problematic as, if expectations are fulfilled, the goodwill's cost will be able to be amortized over the successive cohorts of 'super-profitable' contracts.²³ But it does make it more problematic to identify, simply by referring to the price at which 'similar' M&A deals occur, how much 'super-profit' can be identified *ex ante* wholly with current contracts in force.²⁴

7) The allocation problem

In the absence of a market for Revrec's contract, or an actual takeover, it will remain that much harder to estimate the inherent 'goodwill' value in the existing contract as a guide to how much 'up front' profit on inception it is legitimate to recognise. A result from adopting an 'asset/liability' approach that produces an apparently large profit on inception would therefore need to be carefully tested by asking what market conditions make it reasonable to believe that an enterprise such as Revrec is able to successfully to charge premium prices that significantly exceed factor cost, and yield a return over and above that required by equity shareholders to compensate for time and risk-bearing. An extremely 'safe', conservative view for accounting purposes might be simply to assume that such situations cannot arise (or at least cannot be sustained for long in a competitive economy) and therefore to argue that costs and/or the risk premium must have been underestimated, and provisions for one or more of these should be increased until all initial profit is eliminated, so that all profit has to 'emerge' over the life of the contract. But the problem of determining what is a suitable pattern *within* the contract period will still remain. If the initial, more 'aggressive' estimates do turn out to be correct, higher profits will eventually emerge by the end of the contract period than those assumed in fixing the accounting provisions. But when should they be recognised? In the terms of our example, how much profit can be recognised by December 31st?

What is happening during the contract period is that the value of an unrecognised intangible (or one that has initially been over-conservatively measured at zero) is being realized. When can it be recognized that that 'realization' has taken place i.e. that total costs really are less than those that would justify the revenue being charged (as a result of the imperfectly competitive conditions)? When the contract is initiated (as Revrec has already secured a payment from the customer that more than covers expected future costs and risk premium)? Or only 'gradually' as it is proved that actual costs are indeed less than revenues? Can that be adequately proved before the contract is wholly completed?²⁵ Can the 'risk premium' be adequately measured: or is the uncertainty in the estimates so great that 'certainty equivalents' are themselves little more than guesses and all residual profits (or losses) may better be seen as 'a reward for bearing uncertainty' due to the dynamic nature of a modern economy in which technological change, shifting demand, and management action, produce markets that are at best in temporary and unstable equilibria?²⁶

Without some form of reliable external market benchmark any choice is an 'incorrigible allocation' (i.e. as good as any other, e.g. Thomas 1977) and wholly conceptual arguments about the nature of assets and liabilities, and about 'recognition and measurement criteria' seem unlikely to take us any further. A revision to the standard setters' conceptual framework may acknowledge the problem, but seems unlikely to be able to 'solve' it. It would appear that evidence of how relevant markets

are behaving is what is needed to guide accounting in different individual situations—the deeper and more mature the market, the stronger the available evidence and the less need to rely on management estimates or on judgements as to whether or not accounting policies adopted are reasonable given the uncertainties involved.²⁷

Solution 7 The internal rate of return

One solution that is commonly suggested is to eliminate the recognition of any profit at inception (e.g. Kolschbach 2002)²⁸. One way to do this is to adjust the estimate of the required rate of return so as to eliminate the NPV of the contract. Profit will then emerge as the earning of the ‘internal rate of return’ (‘IRR’) or ‘effective interest rate’ on the initial investment. In our example, accepting the estimates already made for costs, required risk premium, and the discount to be allowed for payment in advance (reflecting the market interest rate), the rate of return that equates the customer’s initial deposit to the future costs/risk releases to be incurred by Revrec is clearly lower than 1% per month, and is in fact a negative rate of nearly 0.5% per month,²⁹ or approximately 5.6% per annum (as it only costs Revrec a total of £120 to supply the customer with magazines and carry the production etc. risks, against an initial purchase price received of \$123.81). It is much cheaper than borrowing \$123.81 at the market rate of interest, which would require repayment with interest at 1% per month, e.g. by 12 instalments of \$11 totalling \$132. Revrec thereby gains \$12 which, together with its reward for risk bearing of \$6, yields the total profit of \$18 over the contract’s life. It effectively *earns* interest on borrowing from its customers (it is borrowing at minus 0.5% per month and investing at 1% per month). The profit split by this method would be \$11.74 to the first 6 months to December 31st and \$6.26 to the second 6 months (more conservative than the ‘asset/liability’ method as no ‘profit on inception’ is recognised, but here less conservative than the conventional ‘revenue recognition’ method as, in this example, more overall return is earned in the first six months while the balance of the outstanding customer liability is larger). The objection remains that using the IRR is no more than a ‘fix’ to avoid any ‘instant’ recognition of profit. In addition it produces balance sheet amounts at December 31st that are hard to understand. The ‘liability’ balance at this date (calculated using the IRR) will be \$61.01, being neither the ‘deferred revenue’ of \$63.75 nor the risk-adjusted liability for future costs of \$57.95.³⁰ It therefore produces figures that cannot be interpreted either in the way that current GAAP figures can, or in the way that ‘conceptual framework’ liabilities may be understood. Its main advantage is that the showing of a rate of return consistently higher than the cost of capital is a widely understood way of indicating that ‘super-profits’ are being made. But it is just one of many possible ways of ‘spreading’ the total expected contract income between the two accounting periods, and is not demonstrably superior on conceptual grounds alone.³¹

8) ‘Deprival value’ reasoning and ‘deferred revenue’

While the fundamental issue, as argued above, is that of the timing of recognition of ‘inherent goodwill’, the problem becomes apparent in the accounts because of the different measures produced under the ‘deferred revenue’ and the ‘asset/liability’ approaches, given that the liability is measured as the estimated cost of providing the contracted goods/services plus allowance for the costs of interest and risk bearing. We therefore now ask whether a ‘deprival value’ approach to the measurement of the liability could resolve the conflict.³²

The valuation of business assets on the basis of asking ‘how much worse off would the enterprise be if it did not have its existing assets?’ has become familiar in discussion of accounting concepts and has been christened ‘deprival value’ (e.g. Baxter 1975; Baxter 2002). It has been adopted by ASB in its ‘Statement of Principles’ under the label of ‘value to the business’ and, in simple situations, may be seen to be the *lower* of ‘replacement cost’ and ‘recoverable amount’, where ‘recoverable amount’ is, in turn, the *higher* of ‘value in use’ and ‘net realisable value’ (ASB, 200x, ch 5). However the FASB (and increasingly the IASB) has generally preferred the concept of ‘fair value’, in particular for the valuation of financial instruments. Fair value is an ‘exit value’ which corresponds most closely (although not exactly) to ‘net realisable value’ (FASB, 1999; 200x; 2004). More recently the IASB, in its DSOP for insurance contracts (IASB, 2001-2002) adopted the concept of ‘entity specific value’ as an alternative that might be adopted instead of fair value for the valuation of insurance policy liabilities at least for as long as there is not a full ‘fair value’ standard for financial instruments in place (i.e. until such time as there is agreement on how the present IAS39 [IASB, 2004a] is to be superseded). ‘Entity specific value’ corresponds most closely (although perhaps not exactly) to ASB’s ‘value in use’ and is therefore only one of the candidates for the ‘deprival value’ in any given set of circumstances.³³

An ‘entry value’ concept (such as ‘replacement cost’) has not therefore been prominent in recent pronouncements, even though ‘deprival value’ (or ‘value to the business’) reasoning (as acknowledged for example by the UK’s Sandilands Report in 1975) leads to the conclusion that for assets that can be profitably employed ‘replacement cost’ is in fact normally the appropriate measure of deprival value/value to the business. Discussion is presently ongoing between standard setters as to appropriate valuation concepts (Lennard, 2002) but the questions we need to explore here are, first, whether ‘deprival value’ reasoning can be applied as effectively to liability valuation (in the form of ‘relief value’) as to asset valuation and, second, if this reasoning can help to resolve some of the apparent conflicts between ‘revenue recognition’ and the ‘asset/liability’ approaches. In other words, can the amount that would be arrived at as ‘deferred revenue’ be shown to represent the ‘relief value’ of an enterprise’s liability under a contract?³⁴

Clearly in the examples we have considered there is no issue in fully competitive situations, when there can anyway be no conflict between the ‘revenue recognition’ and the ‘asset/liability’ approaches. In these cases all possible approaches to the liability’s valuation must all be identical and give the ‘relief value’. If, immediately after signing the contract, Revrec were discharged from its obligation to supply the magazines (without returning any of the subscription), it would be better off by the present value of the expected costs + risk bearing that it would now avoid, i.e. \$112.55. If ‘relief’ occurred at 31st December in respect of the second six-months’ supply, the amount would correspondingly be \$57.95. These amounts represent both ‘entry value’ (what other customers would pay—the mirror of an asset’s ‘replacement cost’) and ‘exit values’ (either what Revrec would now have to pay another publisher to take over the contract—the mirror of an asset’s ‘net realisable value’ (henceforward ‘nrv’)—or the outlays etc. it expects to incur in fulfilling the contract itself—the mirror of an asset’s ‘value in use’).

What, however, is the situation where the contract is inherently profitable over and above the return needed to cover interest and reward for risk-bearing? In our example, on inception Revrec has received \$123.81 while facing an obligation costing \$112.55. We have argued above that the difference (the NPV of the contract) might be regarded

as a ‘profit on inception’ (if not already recognised before then in ‘goodwill’ or other intangibles).³⁵ The corresponding amounts at 31st December are \$63.75 and \$57.95. We have argued above that the relevant liability exit values (\$112.55 initially and \$57.95 at 31st December), represent in each case either what Revrec would now have to pay another publisher to take over the contract—the mirror of an asset’s ‘nrv’—or the outlays etc. it expects to incur in fulfilling the contract itself—the mirror of an asset’s ‘value in use’. If however the profitability is due to Revrec’s expectation that it is more efficient than other publishers (the present value of whose expected costs is anything up to \$123.81 (or \$63.75 by December 31st)) then there will be a divergence between ‘nrv’ and ‘value in use’ (as reflected in the IASB/FASB concept of ‘entity specific value’). Other publishers could not afford to take it over at only \$112.55 (or \$57.95). But nor would Revrec have any reason to dispose of the contract by paying a higher consideration: it would retain it and plan to realise the benefit of its comparative advantage as a cost-efficient supplier. The *relevant* value is clearly here still only \$112.55 (or \$57.95), corresponding to the ‘value in use’ that is relevant for an asset where ‘nrv’ is lower so that ‘value in use’ is ‘recoverable amount’ (cf. Foster and Upton, 2001). For a profitable enterprise that enjoys a comparative advantage from staying in ‘the business we are in’ (whether that be magazine publishing or insurance or whatever) this ‘value in use’ must be the relevant exit value. However, as argued above, the issue of *when* the NPV can be recognised in the accounts as reported profit remains open (and is discussed further below).

But although the highest recoverable amount is a good guide to the best course of action given an existing asset (‘keep’ or ‘sell’), and so *mutatis mutandis* is the lower of ‘fair value’ and ‘entity specific value’ for an existing obligation, can it nevertheless be argued that \$123.81 (or \$63.75) is however the *relevant* liability valuation where it is a higher ‘entry value’ than either of these other candidates (the exit values)—corresponding to the ‘replacement cost’ (henceforward ‘rc’) that is the relevant deprival value for an asset where it is lower than ‘recoverable amount’ (i.e. lower than either exit value)? If so, then as we have seen, the liability valuation will be equivalent to the valuation of ‘deferred revenue’ (at least until magazine prices change).³⁶

Under deprival/relief value logic, we have to ask ourselves what is the optimal action Revrec can take both ‘with’ and ‘without’ the present contract obligation.³⁷ If relieved of its obligation immediately on inception would it seek to ‘replace’ it with another? Clearly the market conditions under which Revrec is operating are crucial here.

Revrec’s management, if maximising value for its equity owners, should already have been selling just as many super-profitable contracts as the market would absorb.³⁸ As with the strict theory of ‘deprival value’ for asset valuation, we need to assume that Revrec has taken the optimal decisions with respect to its current situation.³⁹

However, if it is now at its optimal capacity but the last contract sold was still ‘super-profitable’, then if ‘relieved’ of the current contract Revrec would seek to use the production capacity now freed up to obtain and fulfil another ‘replacement’ subscription, for which it could charge \$123.81.⁴⁰ In other words it would end up in the same position as before facing production outlays and risk with an expected cost of \$112.55, but would have received a further \$123.81 from the ‘replacement’ subscriber. Again the equivalent amounts at 31st December would be \$57.95 and \$63.75.⁴¹

In Table 1 solution #4a ‘dv’ shows the income statement and balance sheet amounts if Revrec uses a ‘relief value’ measure of its liability, equivalent to deferred revenue throughout as, in the case of ‘super-profitable’ contracts, it is assumed that ‘relief’

would enable the signing of a further profitable contract. This valuation would then naturally lead to balance sheet and income statement figures generally identical to those under the conventional 'revenue recognition' approach. But the most important point is that even with this higher liability value, although no longer *forced* by the bookkeeping to report a profit on inception of the contract, Revrec can still *choose* to do so by valuing the relevant 'inherent goodwill', as in solution #4b 'dv'. As in other cases, this approach would then require 'recycling' of the initial profit measure as revenues are earned and costs incurred but would not require a wholesale recasting of the income statement from a 'traditional' basis onto a 'valuation' basis.⁴²

The conclusion is therefore that the amount for 'deferred revenue' can represent the 'relief value' of Revrec's liability and that 'deprival value' reasoning offers a resolution of the conflict between the 'revenue recognition' and 'asset/liability' approaches to stating balance sheet measures.⁴³ However, unfortunately this resolution of the balance sheet measurement problem does not in itself resolve the issues over profit recognition. Just as valuing assets at replacement cost (equivalent to (depreciated) historical cost until prices change) would not *ipso facto* preclude recognition of the value of 'inherent goodwill' (whether or not identified with particular intangibles such as brands), and therefore potentially of the profitability of investment in the assets ahead of their actual use/consumption, similarly measurement of contract liabilities at the corresponding 'relief value' (here argued to be the equivalent of the 'deferred revenue' at least until prices change) would similarly not *ipso facto* preclude recognition of the value of 'inherent goodwill', and therefore potentially of the profitability of contracts ahead of their actual full or partial fulfilment. Except in the special cases of 'zero super-profit' contracts the conceptual arguments over valuation cannot resolve how profit recognition conventions should be standardised: and there they are not needed at least until prices change. Nevertheless standard setters clearly need to devote attention to clarifying and refining their valuation concepts and to move beyond regarding 'fair value' alone (or even 'fair value' and 'entity specific value') as an adequate tool for resolving accounting conflicts (cf. Barth and Landsman, 1995; Horton and Macve, 2000).

9) Acquisition costs

If Revrec's contract to supply magazine issues is expected to yield 'super-profits', there are clearly both shareholder and managerial incentives for Revrec to maximise the number of contracts sold. This may require 'selling' costs to be incurred, e.g. through advertising and other marketing expenditures, and commissions and other payments to distributors. It would be worth Revrec paying up to \$11.26 (the initial NPV) to secure each contract and, depending on the structure of the market, intermediaries may be able to extract more or less of Revrec's initial surplus.

Solution 8a: If Revrec had to pay \$11.26 in initial acquisition costs, the accounting with respect to profit recognition would again become non-problematic in so far as Revrec was able to identify the costs with the contract. If the 'revenue recognition' approach were adopted, Revrec would 'defer' the acquisition costs, i.e. treat them as an asset ('DAC'), and then match the write-off of this asset against the emerging profits of \$1.50 per month. Provided an interest-based method of amortization is used (here 'annuity' amortization, yielding monthly amortization charges of \$1), the net monthly income would then again be just \$0.50, representing Revrec's reward for risk-bearing. At December 31st the balance of both the total recognised assets (including DAC of \$5.80) and of the 'deferred revenue' would be \$63.75.⁴⁴

Solution 8b: Under the ‘asset/liability’ approach the initial liability, utilising an exit value such as ‘fair value’, would as before be \$112.55, while total assets would also be only \$112.55 as ‘deferred acquisition costs’ cannot be recognised as an asset under this approach since they do not represent the value of any future cash inflows as all the cash from the customer has already been received.⁴⁵ The acquisition costs are therefore written off as incurred and the remaining accounting is therefore as under section 4 above (‘normal profits: risk-bearing’), with year-end liability and assets of \$57.95 and profits of \$3 earned to that date, again representing Revrec’s reward for risk-bearing. We may also note that the year-end ‘relief value’ of the liability is also \$57.95—while Revrec would replace the remainder of the contract by receiving another \$63.75 (equivalent to the deferred revenue), to do so it would also have to incur a *pro rata* proportion of the acquisition cost amounting to \$5.80, so that the net benefit of relief would only be \$57.95, as shown in *solution 8c*.

Here, the effect of the up-front payment of acquisition costs has had a similar effect as in section 6 above (where either the contract was purchased by another publisher, or Revrec itself was taken over by an acquirer who paid full value for ‘goodwill’). Profit patterns are the same whether conventional ‘deferral and matching’ approaches are adopted, or the ‘asset/liability’ approach (utilising exit or entry values). It may however be argued that the latter approach produces more ‘realistic’ balance sheet values, as under the former approach the balance for ‘deferred revenue’, shown as liability in the balance sheet, is more than the estimated liability, while the ‘deferred acquisition cost (‘DAC’), shown as an asset in the balance sheet, does not meet the definition of an asset. Others might however argue that the value represented by the DAC is real enough (the expected return on the upfront investment which is inherent in the ‘deferred revenue’) and that the presentation is a useful reminder that accounting cannot fully represent values but utilises conventions which at most can provide useful signposts to where and how profits arise.⁴⁶ As this paper is primarily concerned with potential conflicts in overall profit and net asset recognition patterns we do not pursue these arguments further here.⁴⁷

Problem 9 DAC vs NPV. But what if Revrec occurs acquisition costs less than the amount that would reduce its overall profit to the fully competitive situation? Suppose it has to pay only one-quarter of the previous amount, i.e. \$2.81, for acquisition costs. This leaves \$8.45 of NPV. Total profits over the life of the contract will now be \$15.⁴⁸ While capitalizing and amortizing the DAC under the ‘revenue recognition’ approach as before (i.e. now charging amortization of \$0.25 per issue) will keep overall profits at \$1.25 per month (\$0.50 for risk-bearing and \$0.75 ‘super-profit’) and net assets at zero, under the ‘asset/liability’ approach utilising *exit* values net assets at inception will now be \$8.45 [assets = cash for subscription received \$123.81 less acquisition costs paid \$2.81 = \$121; liability for future delivery (including provision for risk), as before = \$112.55], equal (as in section 5 above) to the residual NPV. Can this amount of profit be recognised on inception? The issues are clearly identical to those discussed already in sections 5 through 7 above. If the relevant ‘intangibles’ cannot be fully accounted for under GAAP then, as we have seen, subsequent profit patterns will differ as between the ‘deferred revenue’ and ‘liability’ approaches to measuring the contract obligation (see Table 1, *solutions #9a and 9b*).⁴⁹ And there is no clear conceptual solution to the conflict.

Again however a ‘deprival value’ approach can overcome the immediate accounting conflict (see Table 1, *solution #9 ‘dv’ (a)*). The valuations would then lead to results generally identical to those under the conventional ‘revenue recognition’ approach

(except that where there are contract acquisition costs, as in example #9, it is only the *net* income and the *net* assets that will be the same).⁵⁰ However, while the accounting numbers no longer force recognition of profit on inception, then (as in case #4 ‘dv’ (b)), this approach is not ruled out (as shown in *solution #9 ‘dv’ (b)*).

10. Insurance contracts

Insurance policies are conventionally divided into ‘short-term’ (normally one year) policies, where policyholders have no right to renew on expiry, and ‘long-term’ (or ‘life’) policies (where policyholders have a right to keep the policy in force for its full term on continued payment of the initially contracted renewal premium). We do not discuss here in detail the additional issues that arise in relation only to long-term policies, although in general similar conclusions ought to apply.⁵¹ Assume Insrec Inc. issues one-year insurance policies on similar terms to Revrec Inc., so that for a typical policy Insrec receives the year’s premium in advance on July 1st, and expects to pay claims and other related costs of \$9.50 at the end of each month, while requiring a risk premium for the uncertainty inherent in its estimates of \$0.50 per month. Clearly a one-year policy where the policyholder pays in advance is structurally similar to the magazine subscription case that we have been considering: we merely substitute ‘premiums earned’ for ‘magazine revenue’, and liability to pay any claims arising during the 12 months of cover for the liability to produce and deliver the magazine issues.⁵²

Acquisition costs are normally paid by insurance companies and, under conventional GAAP, are deferred and amortized against premium income. ‘Unearned premiums’ will conventionally be carried as a liability in Insrec’s balance sheet at the December 31st accounting year-end (in the simplest case through simple time-apportionment between accounting periods, or more sophisticatedly by taking account of any variation in the pattern of insurance risk across the policy year) but clearly they will represent no more than Insrec’s liability to pay the remaining expected claims⁵³, together with provision for risk-bearing, only where Insrec’s product is fully competitively priced. As we have seen, if Insrec is able to charge a premium which more than covers all costs that have been or are expected to be incurred (e.g. through the advantage of approval under a prevailing regulatory regime, which creates barriers to entry to new competitors; or through a reputation for exceptional financial probity, investment expertise and fair dealing that it has built up—perhaps at considerable expense—over a long institutional history; or through a ‘first-mover’ advantage from having identified a new insurance product that fills a market niche; or from being more efficient than other insurers), its provision for ‘unearned premiums’ will exceed its estimates for claims and related costs still to arise plus risk premium. It will have an NPV that could be recognised as ‘profit on inception of the contract’ under the asset/liability approach.

An alternative approach to regarding an insurance policy as a ‘contract to provide services’ (primarily insurance cover) to policyholders, comparable, *mutatis mutandis*, to the magazine contract or to any other contract for goods or services paid for in advance, is to regard it as primarily a ‘financial instrument’. Given the current enthusiasm of standard setters for ‘marking to market’ of financial instruments (illustrated for example by the recent amendments made by IASB to IAS39 (IASB 2004a)), an approach that accounts for insurance policies in the same way as for ‘financial instruments’ generally may appear to offer the hope of eliminating conflicts between different approaches to accounting, especially as the majority of insurers’ assets (i.e. their investments) are themselves financial instruments. Unfortunately

accounting universally for financial instruments by 'marking to market' is itself riddled with many conceptual as well as practical difficulties (e.g. Horton & Macve, 2000).

But even though an insurance policy may be regarded as a 'financial instrument' in so far as the obligation to pay claims is a 'financial liability', i.e. one where the obligation is a fixed (albeit estimated) monetary amount, rather than an obligation to provide goods (like magazines) or services, nevertheless policy liabilities are, at least for financial appraisal, valuation and accounting purposes, in principle no different from such production / service liabilities. Taking the perspective of a company's investors and their interest in its generation of net cash flows to them, investors are not as such concerned whether the company's underlying business requires it to deliver goods and services or to pay financial claims. Both require cash outlays, in the first case to acquire the resources necessary to produce and deliver the goods and services, and in the second case to pay the financial claims directly. Similarly for accounting purposes it is an estimate of the monetary cost of those cash outlays that is needed for both kinds of obligation.

So we may legitimately compare Insrec's insurance policy with Revrec's magazine contract. The acknowledgement that financial liabilities such as life insurance policy liabilities or bank deposit liabilities also include some service element (e.g. FASB, 1999; IASC, 1999, paras. 48-60), and may therefore differ from 'straightforward' financial instruments, does not in itself therefore seem relevant to the conceptual issues (although it may be an acknowledgement that the evidence deemed adequate for making satisfactory liability estimates may thereby differ to some extent).⁵⁴

The Steering Committee on Insurance ('SCI') proposed in its Issues Paper (IASB, 1999, paras. 316-17) to reclassify the conventional provision for 'unearned premium' in short-term insurance as a provision for 'unexpired risk', giving rise to potential recognition of inception-date profit. This 'prospective' approach was endorsed in the latest tentative proposals on measurement in the Draft Statement of Principles for insurance contracts ('DSOP') (IASB, 2001, Chapter 3, paras. 3.34 to 3.38) although subsequently IASB has indicated in IFRS4 (IASB 2004b) that initial profit recognition is to be precluded unless there is strong market evidence to support a lower 'fair value' of the liability.

As we have seen, this new approach will generally only produce the same result as practice under current GAAP if general insurers face perfectly competitive markets—or are able to treat as policy acquisition costs all investment in brands, reputation etc. that has given them any competitive advantage. In the real world, the substitution represents an implicit decision as to the pattern of reported realization of the insurer's 'brand value' and other intangibles to be adopted. FASB (1999, paras. 166-7) smuggles in the same implicit decision on revenue and profit recognition, which appears inconsistent with current GAAP as found in conventional practice for the 'magazine subscription' case.

11. Revisions to estimates

We have assumed in the discussion so far that events turn out as planned. Generally however actual outcomes will diverge from expected outcomes and estimates of remaining outcomes will be revised. If the revisions to outcomes/estimates only arise in the second half of our contract year, then the profits reported for the first half year will remain identical to those discussed above and illustrated in Table 1. Clearly if the revisions are adverse (e.g. costs are now expected to be higher) then in all our examples except those where there is an initial positive NPV, the accounts will now show losses in the second half-year and overall (after charging for interest and risk-bearing). For the cases where a positive NPV was originally estimated, that NPV would now be smaller or would become negative (i.e. a loss overall). Equally clearly, the more profit that has been recognised in the first half of the year, the greater the loss (or at least profit fall) that will have to be reported in the second half-year. But provided a proper provision for risk was made initially, this would not appear of itself to justify changing the pattern that is chosen *ex ante*.

If the revisions are favourable, this will create (or further increase) NPVs. Correspondingly, the same difficulties over deciding when to recognise this new value will arise as under sections 5-7 above, although, as a practical matter, it is likely that greater caution and delay would be exercised in recognizing expected 'favourable variances' than in recognizing 'adverse variances' (consistent with the 'European Embedded Value Principles' recently issued by the European CFO Forum (2004)).

12. Changing prices

The ASB's discussion paper suggests that often an appropriate technique when 'dealing with incomplete contractual performance is to assess the value of benefit that has not yet accrued to a customer' (ASB, 2001, para. 3.22). However, inconsistently with deprival value reasoning, it argues that: 'Once again, when making this assessment, it is important that it is based on prices and circumstances that would have prevailed at the time the contract was originally formed; otherwise, *changed prices may distort the allocation of overall revenue from the contract*' (para. 3.23--emphasis added).

If at the year-end conditions have changed such that Revrec (or Insrec) can now charge more for new subscriptions (or policy premiums), while costs have not changed, then both conventional revenue recognition and an asset/liability approach based on the exit value of 'expected cost to perform' will still show the originally expected amounts. But 'relief value' will rise as avoidance of the current obligation would allow entry into a new, replacement contract at the new price. There is clearly an 'opportunity loss' from being saddled with the current contract (and equivalently an 'opportunity gain' if prices have fallen). But whether the accounts should record any loss or gain as part of 'current earnings' opens up the same arguments as those debated frequently in the past over whether gains and losses in replacements costs of assets should be recognized in current earnings or presented separately (e.g. as currently in the UK in the STRGL); and if the latter whether they should then be 'recycled' into current earnings in subsequent periods to offset the higher or lower cost (here revenue) amounts then flowing through. Lennard (2002, Appendix B) argues, on balance, against recognizing repricing effects. However, it may be noted that not recognizing such revaluation gains and losses, as recommended by ASB 2001, has the same overall net effect on earnings as initial recognition outside earnings coupled with subsequent recycling.⁵⁵

Notes:

¹ We do not discuss here other issues relating to 'revenue recognition' such as barter contracts and other forms of linked transactions (e.g. automobile sales on credit with favourable finance; equipment sales with profitable maintenance/insurance contracts; 'loyalty' discounts for repeat purchases; etc.) or the manipulative presentation of 'round-trip' trading. See e.g. *Financial Times*, June 6 2002, p. 22 'Added Value' by Andrew Hill; Daily Telegraph, August 16 2002, p.36 'CMS Energy chiefs paid £5.5m to quit' by Malcolm Moore.

² It will become clear from later analysis that the timing of payment is not crucial to the argument. But if payment is by instalments, or at or after contract completion, there will be additional complexities of potential credit risk to be considered which we can abstract from where payment is made in full in advance. The example also has the attraction of being the mirror-image of the more commonly discussed accounting problems (e.g. for inventories or plant and equipment) where cost outlays occur first and revenues flow in later.

³ The Board discussed a number of illustrations of alternative accounting models and decided not to 'pursue...further at this time' a model which would preclude recognition of any profit at the inception of a contract.

⁴ This implies no growth in business during the accounting year. In a 'steady state' all accounting conventions produce the same reported profit number (e.g. Beaver, 1998), although reported net asset levels may differ. However, we can introduce growth by assuming e.g. that the number of the previous year's contracts was at a lower level. Then, as this year's results will also be affected by the run-off of last year's contracts, different profit reporting conventions will produce different patterns of results from year to year. We do not investigate this effect any further here.

⁵ For simplicity we ignore the customer's right to cancel at any time and receive a pro-rata refund of subscriptions paid. If the contract does not impose any penalty on cancellation, the pro-rata calculation of 'unearned revenue' at 31 December under current US, UK and international GAAP would equal the amount repayable (i.e. half in this case), and this could also be regarded as the 'liability' to be recognised and measured under the conceptual framework's 'asset/liability' approach so that there would be no conflict. (Although even here it may be argued that the provision should be less, being based on an expectation, perhaps based on recent experience adjusted for known changes in economic and other conditions, as to how many customers will in fact cancel, so that there could be divergence between the potential liability and the reasonably expected liability). But if there is a penalty for cancellation (in the extreme, the customer is not entitled to any refund) then there will clearly be a divergence between the liability to customers for refunds and the 'unearned revenue'. As we shall see, however, the more important issues relate to the liability to provide the magazines rather than to the potential liability to pay refunds. For this reason it is also convenient to assume initially that the enterprise is not liable to pay refunds if it unilaterally cancels the contract: since if this is a 'typical' contract, cancellation of the contract (i.e. effectively all contracts) implies liquidation of the enterprise whereas we are here primarily interested in accounting on the basis of a 'going concern', i.e. one that intends to continue providing monthly magazines to existing and also, hopefully, new customers.

⁶ For simplicity we assume markets are in both short-term and long-term equilibrium. We allude briefly below to the additional accounting difficulties faced when markets are in disequilibrium.

⁷ Again for simplicity we assume marginal cost equal to average cost. Under conventional microeconomic analysis, this will be the case if volume is optimal in a fully competitive industry, thereby reaping optimal economies of scale in long-run equilibrium

⁸ one may imagine electronic delivery via the internet, but in fact provided physical delivery has the same unit cost per subscriber, or equivalently the delivery cost for our 'typical' subscription represents the average delivery cost, it can simply be counted in with the unit production cost.

⁹ We assume competitive capital markets such that borrowing and lending are available on the same terms to all participants. 1% per month, with monthly rests, is equivalent to $((1.01)^{12} - 1) \times 100$ % per annum, i.e. 12.6825% per annum. An annuity of 12 instalments of \$10 per month at 12.6825%p.a. has a present value of $\$10 \times 11.25508 = \112.5508 .

¹⁰ i.e. conventional accounting, if it ignores the interest effect, would be led to regard this as an 'onerous contract' (as only \$112.55 has been received for an obligation to incur costs totalling \$120), requiring the booking of a loss on inception of \$7.45 under current GAAP. This could also be accounted for as a 'cash discount' in the first half-year.

¹¹ We do not discuss here the presentational issues as to whether 'interest' / 'unwind of discount' should be shown as part of 'operating' income or as 'finance'—or how far there should be netting off—which are currently being debated in the IASB's project on 'Performance Reporting' (see website at www.iasb.org.uk).

¹² This assumes for simplicity that all production costs are paid monthly (e.g. that property, plant and equipment are all hired at a monthly rent). If equity had provided fixed and working capital facilities it too would properly earn a net interest income at the competitive rate.

¹³ The bookkeeping is [opening liability \$112.55 + unwind of discount \$5.40 = \$117.95, less reduction equal to costs of monthly magazine issues now called off \$60 = remaining liability \$57.95]. Equal and opposite amounts relate to the investment of the initial subscription received. The results are shown in Table 1. Full calculation work-sheets for all the examples are available from the author.

¹⁴ For simplicity we assume here that there is no risk of insolvency, so customers and other factor suppliers (other than equity owners) do not bear any risk of their contracts not being fulfilled. Issues relating to 'credit standing' are discussed further in Horton & Macve (2000; 2002). We do not discuss here whether the 'risk premium' should reflect the whole of the company's risk or only its 'systematic' risk (on the grounds that investors holding diversified portfolios will not be rewarded for bearing diversifiable unsystematic risk) (cf. IASB's DSOP (2002) chapter 5).

¹⁵ Revrec might choose to invest the subscription proceeds in a riskier investment paying a higher rate of return. But in a fully competitive investment market, differential rates of return will simply reflect different anticipated risks. So there will also need to be a provision for risk in estimating these returns, and the 'certainty equivalents' of the investment receipts will be equal to the risk-free returns expected from the 'risk-free' investment as before. If the expected returns are realised, Revrec will therefore earn an additional reward for the additional risk-bearing over the life of the contract. Estimates of liability values will therefore be unaffected. [As argued by Abbott (2000), failure to distinguish the effects of differential risk in different 'investment margins' has clouded the IASC SCT's discussion of 'embedded values' in the Issues Paper (IASC, 1999, paras. 641-2).]

¹⁶ The bookkeeping is now [opening liability \$112.55 + unwind of discount \$5.40 = \$117.95, less reduction equal to costs of monthly magazine issues called off \$57 and less release of provision for risk \$3 = remaining liability \$57.95]. For simplicity of arithmetical illustration we assume immediate distribution of monthly profits to avoid further interest effects. The amounts relating to the investment of the initial subscription received therefore remain as in the previous example, so that there is recognition of an overall profit of \$3 for the first 6 months.

¹⁷ In the management and accounting academic literature this NPV (i.e. the value of the amounts expected to be earned for owners over and above the required rate of return) is variously described as 'goodwill' (e.g. Edey, 1957), 'subjective goodwill' (Edwards and Bell, 1961), 'the present value of future residual incomes' (e.g. Peasnell, 1982), or 'the present value of future abnormal earnings' (e.g. Ohlson, 1995). In professional and practitioner usage the concept is reflected for example in Stern Stewart's 'EVA®' and in the 'profit on new business' reported under the 'achieved profits' method utilised for supplementary reporting by UK life insurers (usually based on 'embedded values') (ABI 2001; Horton & Macve, 1996). Managements now frequently state in their annual reports to shareholders that their primary objective is to maximise such value for shareholders (e.g. Beattie *et al.* 2002). We do not discuss here the wider microeconomic and macroeconomic implications of assuming the continuing availability of such 'excess returns' (cf. Ohlson, 1995; O'Hanlon (19xx); Kaldor, 19xx).

¹⁸ Again for simplicity of arithmetical illustration we assume immediate distribution of monthly profits to avoid further interest effects. The first six-months' bookkeeping for the remaining assets from the initial subscription (i.e. \$123.81) is then [opening asset \$123.81 + interest earned \$5.94 = \$129.75, less payments for costs of monthly magazine issues called off \$57 less distributions of 'profit' (comprising release from risk and 'super-profit') \$9 = remaining asset \$63.75]. The asset is then equal at all times to the deferred revenue, and interest earned on the assets and 'unwind of the discount' on the provision cancel each other out.

¹⁹ As the value of all the 'excess revenue' is recognised in reported income on inception, if earned premiums are subsequently to be reported as 'revenue' in the conventional way there will need to be a 'recycling' adjustment of \$6 in each half year to avoid double counting (as shown in Table 1).

²⁰ Equivalent because 'selling' the right to the contract for \$11.26 (including handing over the \$123.81 subscription money received) is equivalent to paying a net \$112.55 to be relieved of it. If we assume that the acquirer finances the deal by immediately extracting the 'excess' \$11.26 from Revrec's subscription monies, then if the acquirer uses 'deferred revenue' accounting, it reports an acquisition

cost asset and amortizes it (the bookkeeping is given in fn. 45 below). If it uses 'asset/liability' accounting the net assets acquired will equal the purchase price.

²¹ Foster and Upton (2001) appear to argue that in this situation the 'fair value' is \$123.81 as evidenced by the market transaction of the customer's subscription, and that another publisher would also require this amount, not \$112.55, to take over the liability. \$112.55 is an 'entity specific' value not a 'fair value' (IASB, DSOP ch. 3). Certainly the acquiring company would also need to earn a profit to cover 'interest' and 'risk-bearing'—but no more. Foster and Upton do not analyse how 'profits' may arise beyond mentioning risk premia and cost efficiencies (which we discuss below). Nor do they discuss the general valuation model of 'deprival value' and its application to liabilities, i.e. under what circumstances 'fair value' is the relevant value (cf. Horton & Macve, 2000; Barth & Landsman, 1992; Baxter 2002). Moreover, in an imperfectly competitive market it is not clear which other supplier's prices and costs should form the relevant 'market price' benchmark. Under the assumptions we have made here, the 'fair value' of Revrec's contract liability is surely \$112.55, if that is the best price at which it can actually transfer it.

²² As before, we assume that the acquirer finances the deal by immediately extracting the 'excess' \$11.26 cash from Revrec's subscription moneys. Again 'goodwill on consolidation' will arise if the contract is accounted for by 'revenue recognition' so that the reported net assets of the acquired company are zero. Despite the recently proposed prohibition on 'interest based' methods of depreciation in the UK (ASB 2001), such a method of amortizing the goodwill will be necessary to properly match income and expenditure and leave residual profits totalling £6 as before. The unamortized balance on this basis at 31st December will be \$5.80. [If the contract liability is only valued at \$112.55, acquired net assets will be \$11.26, equal to acquisition cost and the amount needed to finance the deal.]

²³ Even if the goodwill is not amortized on a systematic basis, but only through impairment reviews (as now under SFAS xxx (FASB, 2001)) then, as its value will fall as the life of the 'super-profits' expires, the cost will have to be charged against earnings in order to properly match income and expenditure in the reporting of earned income (*pace* the IASB's recent discussions on 'reporting performance': see IASB UPDATE May 2002 cf. Arnold *et al.* 1992). The value remaining at 31st December will again be \$5.80 (the present value of \$1 per month for a further 6 months).

²⁴ In current UK insurance company valuation practice, the corresponding distinction is between the 'embedded value' (of the existing book of contracts in force) and the 'appraisal value' which allows for the expected profitability of future contracts (e.g. Horton & Macve, 1995; KPMG, 2001).

²⁵ While the completion date of Revrec's contract may be clear, where there are ongoing obligations (e.g. product warranties or, as in the case of insurance contracts, delays between occurrence and settlement of claims) the enterprise may remain 'on risk' well beyond the initial contract period and profit may only emerge during that run-off period.

²⁶ An equivalent situation arises if Revrec believes its competitive advantage lies, not in being able to charge premium prices for its 'masthead/brand', but in being able to undercut competitors on cost efficiencies. If Revrec expects to be able to undercut competitors, while charging the same price as them, this is equivalent to charging \$11 per magazine issue while anticipating costs of only \$10 (including risk premium). There is again expected NPV of \$11.26. Is the liability then \$123.81 (the 'fair value' of the contract given that is what customers are prepared to pay, and what competitors would have to charge, which is equal to the 'deferred revenue')? Or is it only \$112.55, the present value of expected costs (including risk premium). Clearly, if it believes its own cost estimates, Revrec could compete even more effectively by lowering its price to gain volume from its competitors, in the limit driving it down to \$112.55 (hence the standard prediction of microeconomics that in long-run fully competitive equilibrium inefficient firms will be driven out). If it actually charged its customers only \$112.55, Foster and Upton would presumably have to accept this as the 'fair value' of the liability, even though other firms would need \$123.81 to take it over, or else Revrec would have to show a loss on inception of a contract that is profitable (at least far as earning a risk premium is concerned). Clearly its auditors might investigate more closely the risk that Revrec was in fact entering into cut-price contracts that were onerous before accepting its financial statements: but at the end of the day if the estimates appeared to have been made on sufficient evidence (e.g. from recent experience) and with due care, they would have to accept \$112.55 as an adequate provision for the liability (which here would again equal Revrec's deferred revenue). It therefore seems illogical to argue that where Revrec instead decides to exploit its advantage by pricing at the same level as its competitors, it must treat that higher price as its liability estimate (i.e. the amount that would be its 'deferred revenue').

²⁷ The paradox here for accounting standard setters is that it is only when values are not already readily obtainable from other reliable market sources that the accounting process may be seen to add incremental information content (e.g. Beaver, 1998: yy).

²⁸ in the example discussed at the IASB meeting on insurance on 23rd May 2002 the profit on inception was eliminated by adjusting the estimated risk premium (see www.iasb.org.uk).

²⁹ more exactly, -0.4775% per month

³⁰ Indeed, given that Revrec starts with no net assets, it may be hard to explain how it earns 'a rate of return'. Moreover, in the general case, where companies also hold productive assets and inventories, use of the IRR produces values for these which do not represent 'deprival values' and are inconsistent with any available market values (Baxter 1975).

³¹ Another approach ('earned economic income') that has been proposed for eliminating profit on inception is to allocate the NPV over the contract life in proportion to the cash flows received (e.g. Grinyer, 2000; cf. Peasnell, 1995a, 1995b). In cases of payment in advance presumably the allocation would have to ignore the initial receipt and be based on the pattern of the subsequent cash outflows.

³² Related arguments are explored in Lennard 2002. However the focus there is mainly on 'when is the performance' and this drives Lennard to argue that the liability measurement basis should be (in the case of liabilities) 'relief value'. In this paper we focus primarily on the 'value measurement' arguments for why 'deferred revenue' provides the relevant liability 'relief' value (i.e. 'what difference would it make if the enterprise were relieved of its liability under the contract?').

³³ IASB and FASB [check] have argued, at least in relation to insurance contract liabilities, that, given that both measures utilise as far as possible information available to and estimates made by the 'market', the only significant difference between 'fair value' and 'entity specific value' to an entity in practice is likely to arise from cost efficiencies estimated to be achievable by the entity which are superior to those reflected in the market's estimate of the 'average' supplier and are based on knowledge known or appropriable only to the entity. The entity would therefore rationally choose to 'run off' the liability itself by performance of its obligation to supply goods or services (or pay required contractual payments) rather than pay the higher price required by another less efficient entity to take it over and still earn an acceptable return. IFRS4 (IASB, 2004b) now indicates that it is expected that in Phase II insurance contracts will be valued at fair value, but often at the level in the hierarchy where significant entity inputs are required, which is substantially the same basis.

³⁴ Lennard (2002 p. 11) characterises the relevant bases as: 'relief value' (corresponding to 'deprival value'/'value to the business' in the case of an asset) which may be either 'consideration' (i.e. an entry value corresponding to replacement cost in the case of an asset) or 'settlement amount' (an 'exit value' corresponding to 'recoverable amount' in the case of an asset). The latter amount in turn may be 'cost of performance' (corresponding to 'value in use' in the case of an asset) or 'cost of release' (corresponding to net realisable value in the case of an asset). Consideration (i.e. the price that would be charged to a replacement customer) is then the relevant value under the same conditions that replacement cost is relevant for an asset.

³⁵ As pointed out by Shwayder (1967), under certainty all future NPVs on the entity's anticipated business will logically be assigned to the opening accounts for the first period of its activities.

³⁶ just as historical cost of assets represents their replacement cost until prices change.

³⁷ Writers have tended to be sceptical as to whether 'relief value' of liabilities can be made to mirror precisely the 'deprival value' of assets and in particular have doubted the concept of 'replacement liability'. Baxter (2002, p.19-20) argues that the notion of 'replacement loan' is irrelevant. Horton & Macve (2000, p.28 and fn.12) in discussing AARF (1998) do not pursue the matter rigorously. But while the notion may not be helpful for the kind of liabilities that are issued to raise finance—as it is generally not clear why a relieved borrower would want to take on another loan—we need to explore whether it may have a role for the kind of liabilities (i.e. the obligations involved in carrying out the enterprise's business activity) that we are discussing here, such as Revrec's contract.

³⁸ We do not explore further here the conventional microeconomic analysis of competitive pricing whereby Revrec (like other firms) will in fact seek to equate marginal revenue and marginal cost (e.g. if price is competitively determined in a large market, expand volume until marginal cost of production equals price; or, if pricing is 'monopolistic', expand volume until the marginal cost of production equals the marginal revenue from the falling price that can be obtained.) This implies that Revrec will be 'indifferent' between replacing and not replacing its 'last' contract. The profitability of our 'average' contract must represent the value of non-marginal business (of which there will be none in long-run equilibrium in a fully competitive industry with equally efficient suppliers, e.g. Katz and Rosen, 1998,p.341; cf. 345).

³⁹ e.g. where able to charge a premium price, through sub-contracting output in excess of its own capacity to non-premium producers (of equivalent quality) and thereby maximising revenue and profits. See also Bromwich, 1977. FASB 2004 argues for reference to the best alternative of the market opportunities available (see comment at <http://accfin.lse.ac.uk/staff/macve/>.)

⁴⁰ The argument holds even if the last contract was 'marginal', e.g. due to rising production cost for extra volume, given that we can nevertheless regard our 'average' contract as typical of the entire book of contracts (i.e. as representing the average position over Revrec's business as a whole, comprising a mixture of contracts covering a range of 'super-profitability' down to the last 'marginal' contract).

⁴¹ Note that while the conclusion as to the liability measure is similar to that arrived at by Foster and Upton (2001), their argument is based on an identification of 'exit value' based on 'average' market participants that we have rejected as not being an exit value of any actual relevance to Revrec. Hence we favour viewing the same amount as instead representing the relevant 'entry value'. [check F&U*****]

⁴² The bookkeeping is as follows. Again for simplicity of arithmetical illustration we assume immediate distribution of only 'conventional' monthly profits to avoid further interest effects. In example #4b 'dv', the first six months' bookkeeping for the remaining assets from the initial subscription (i.e. \$123.81) is then, as before, [opening asset \$123.81 + interest earned \$5.94 = \$129.75, less payments for costs of monthly magazine issues called off \$57, and less distributions of 'profit' (comprising release from risk \$3 + 'super-profit' \$6) \$9 = remaining asset \$63.75]. The balance of 'inherent goodwill', properly amortised by the 'annuity method' is [opening asset \$11.26 + interest earned \$0.54 = \$11.80, less monthly amortization charges \$6 = remaining asset \$5.80 (equivalent to the present value of 6 more monthly amortization charges)]. The liability value at 'relief value' is initially \$123.81 and, following the same pattern as the invested assets from the initial subscription, increases by \$5.94 of 'unwind of discount', which, after deduction of amounts representing costs called off and release of risk and 'super-profit', totalling \$66 (reported as 'earned revenue') leaves a 'relief value' of \$63.75 at December 31 (i.e. the present value of six new monthly subscriptions of \$11 that could be substituted if the present contract obligation could now be avoided). The excess of the total assets [\$63.75 + 5.80 = \$69.55] over the relief value of the liability [\$63.75] is then equal to the 'equity' [\$5.80], representing the amount of the profit recognised on inception that has not yet been distributed (i.e. the present value of a further six month's distributions of \$1 'super-profit'). So it is still possible to present the income statement in the traditional manner if there is also a corresponding charge for what might perhaps be labelled 'amortization of "inherent goodwill" / "embedded value"' (effectively the recycling of the profit recognised on inception). If no profit on inception is recognised the balance sheet and income figures will simply be those already shown under solution #4a, the conventional 'revenue recognition' approach.

It may be noted that in examples #5 and #6, where the acquirer of Revrec's contract, having paid \$11.26 for the benefit of it, thereafter only earns a 'competitive' rate of return (including reward for interest and risk bearing), an asset/liability approach will give the same 'deprival value' (\$112.55 initially and \$57.95 at 31 December) whether an 'entry value' basis (which has to allow for the cost of obtaining an equivalent replacement subscription) or an 'exit' value basis (representing the cost to fulfil or to transfer the contract) is adopted. Moreover, although a conventional 'deferral and matching' approach would give \$123.81 initially and \$63.75 at 31 December as the 'deferred revenue' balance, there would then also be an acquisition cost / purchased goodwill asset to be amortized (initially \$11.26 and down to \$5.80 at 31 December) so that the net asset amounts (and the net incomes) would be the same whichever approach was adopted.

⁴³ The example considered here is equivalent to a 'single premium' contract whether for a short-term non-life or a long-term life insurance policy (IASB considered an example of the latter at its July 2002 meeting), as having the contract run over the end of an accounting period is sufficient to provide the basis of the argument, whether the remaining period after the year-end lasts during just one or many further accounting periods. However the conclusion will also apply to more complex circumstances, e.g. where subscriptions/premiums are paid in instalments, and where the pattern is weighted to 'lock-in' the subscriber/policyholder (e.g. by charging higher instalments/premiums in the early stages of the contract and then instalments/premiums below cost if the contract is continued during the remaining period, and with or without 'surrender values' repayable to the customer on early termination—as in the level-premium life insurance contract example that IASB considered at its July 2002 meeting).

⁴⁴ Again for simplicity of arithmetical illustration we assume immediate distribution of monthly profits to avoid further interest effects. But now we assume the acquisition costs are paid at inception. Deferred revenue at December 31st, as before, is \$63.75. The first six months' bookkeeping for the

remaining assets from the initial subscription (i.e. $\$123.81 - 11.26 = 112.55$) is then [opening asset $\$112.55 +$ interest earned $\$5.40 = \117.95 , less payments for costs of monthly magazine issues called off $\$57$, less distributions of 'profit' (comprising release from risk) $\$3 =$ remaining asset $\$57.95$]. The balance of deferred acquisition cost, properly amortised by the 'annuity method' is [opening asset $\$11.26 +$ interest earned $\$0.54 = \11.80 , less monthly amortization charges $\$6 =$ remaining asset $\$5.80$ (equivalent to the present value of 6 more monthly amortization charges)]. The total assets [$\$57.95 + 5.80 = \63.75] are then equal at all times to the deferred revenue, and interest (including notional interest) earned on the assets and 'unwind of the discount' on the provision cancel each other out, leaving the net income for the first 6 months as $\$3$ (comprising release from risk). Even if the balance sheet is presented on an 'asset/liability' basis, it is still possible to present the income statement in the traditional manner if there is also corresponding charge for what might perhaps be labelled 'amortization of embedded value'.

⁴⁵ They are of course an asset until the contract is initiated and the subscription is received, as the costs have been invested in anticipation of securing the profitable contract. They are therefore effectively amortized by immediate write off on inception of the contract, thereby cancelling out the NPV that is effectively being recognised at that time. However this logic would clearly lead to the view that Revrec may also recognise the current NPVs of all *future* contracts if it expects acquisition costs to average less than $\$11.26$. Although such value might indeed be realised by a sale of the magazine title to another publisher, or a stockmarket takeover of Revrec itself, we do not pursue the argument here as standard setters' discussions are generally constrained to debating the accounting for contracts that are already 'on the books'. But the discussion of when 'super-profits' can be recognised is really a question as to what is the appropriate point (or period) of time after they are first anticipated.

⁴⁶ Life insurers have therefore frequently argued that it is immaterial whether DAC (or correspondingly 'embedded values') are shown as a separate asset or are instead netted off against the valuation of 'policy liabilities' (e.g. Horton & Macve, 1995, pp.xxx).

⁴⁷ Note that if Revrec's competitive advantage was due to cost efficiencies (e.g. everyone was charging $\$123.81$ but Revrec estimated it could supply the magazine issues for a present value of costs + risk premium of only $\$112.55$), it could similarly be the case that Revrec had rationally invested up to $\$11.26$ in order to achieve the necessary improvements in production (new machinery; revised organisational procedures; additional employee training and incentive packages etc.). If these costs are now correctly amortized against the contract (either immediately on inception or gradually over its life), profits will again emerge as only $\$3$ per half-year.

⁴⁸ Assuming distributions are cut to $\$1.25$ per month.

⁴⁹ A similar problem would therefore arise even when Revrec had to spend on average a total of $\$11.26$ per contract to establish its market advantage, but where not all of this expenditure could be associated with individual contracts (e.g. corporate advertising expenditure) and so a proportion had to be 'written off' under current GAAP. The 'revenue recognition' approach would then fail to fully match costs against revenues, introducing a further conservatism into profit patterns (cf. Ohlson, 1995).

⁵⁰ If, as in example #9, we assume the acquisition costs are paid at inception are only $\$2.81$ (so that total contract profit is $\$15$, 'super-profit' is $\$9$ and the NPV is $\$8.44$) the 'deferred revenue at 31 December, as before, is $\$63.75$ but there is also a deferred acquisition cost asset at that date of $\$1.45$. The first six months' bookkeeping for the remaining assets from the initial subscription (i.e. $\$123.81 - 2.81 = 121.00$) is then [opening asset $\$121.00 +$ interest earned $\$5.81 = \126.81 , less payments for costs of monthly magazine issues called off $\$57$, and less distributions of 'profit' (comprising release from risk $\$3 +$ 'super-profit' $\$4.5 =$) $\$7.5$ leaves remaining asset $\$62.30$ (after rounding error of $\$0.01$)]. The balance of deferred acquisition cost, properly amortised by the 'annuity method' is [opening asset $\$2.81 +$ interest earned $\$0.14 = \2.95 , less six months' amortization charges $\$1.5 =$ remaining asset $\$1.45$ (equivalent to the present value of 6 more monthly amortization charges of $\$0.25$)]. The total assets [$\$62.30 + 1.45 = \63.75] are then equal at all times to the 'deferred revenue' (as in example #9a). However, with liabilities valued at exit value, as in example #9b, the NPV of $\$8.44$ is included in the first half year's profit, and assets exceed liabilities.

Under the deprival value approach, and given our assumptions, the 'relief value' of the liability at 31 December is equal to the present value of six months' replacement' revenue ($\$63.75$) less the cost of acquiring it ($\$1.45$) = $\$62.30$. If profit on inception of $\$8.44$ is recognised (as in example #9 'dv' (b)), the first six months' bookkeeping for the related asset for "inherent goodwill" / "embedded value" will be [opening asset $\$8.44 +$ interest $\$0.41 = \8.85 , less 'amortization/recycling' $\$4.50 =$ balance $\$4.35$]. Assets then exceed liabilities by $\$4.35$ representing the undistributed amount of the initially recognised 'profit on inception' (and equal to the present value of 6 further distributions of $\$0.75$ 'super-profit' per

month). So again, even if the balance sheet is presented on an 'asset/liability' basis, it is still possible to present the income statement largely in the traditional manner if there is also corresponding charge for what might perhaps be labelled 'amortization of 'inherent goodwill' / 'embedded value' ' (which together with the *pro rata* implicit 'loss' of acquisition cost of \$1.50 needs to be 'recycled' out of the reported earned revenue). We do not discuss the income statement *presentation* issues further here.

Of course if no profit on inception is recognized the bookkeeping is that much simpler. Now the balance sheet 'deprival value' figures (as in example #9 'dv' (a)) will be as for the 'revenue recognition approach' except that there will be no DAC asset, and the liability 'relief value' will be lower by the same amount, reflecting the acquisition cost to be incurred in replacing the profitable subscription. The income statement amounts will also have correspondingly lower interest earnings and costs (by \$0.14 in the first 6 months, i.e. both becoming \$5.81 (rounding error of 0.01)) but will otherwise be identical to those for the 'revenue recognition' approach (as there will still need to be a charge for the *pro rata* implicit 'loss' of acquisition cost of \$1.50 which needs to be 'recycled' out of the reported earned revenue).

⁵¹ see e.g. Horton & Macve (1995, 1997, 2002) and footnote 44 above.

⁵² While the insurer is only liable for claims arising during the period of cover, unlike our simple magazine subscription case, it is normal both that all claim occurrences are not fully known about by the end of the policy period and that amounts are often not finally determined until after the end of the policy period, and in some cases may not be finally settled for many years ahead (e.g. 'long-tail' personal injury, health and environmental claims). While this increases the uncertainty in the estimates as compared to the simple magazine example (such that traditionally the accounts for some classes of business have been kept 'open' beyond the year-end, as in Lloyd's 'three-year' syndicate accounting), nevertheless elements of Revrec's production costs (e.g. employee post-retirement benefits) may similarly not be finally determinable for many years to come.

⁵³ strictly one cannot discuss the liability on an individual policy as insurance relies on the pooling of risks across substantial populations of policyholders: but we can still scale down the resulting statistical expectations in considering our simple 'typical' policy example.

⁵⁴ ASB (2001) para. 2.19 argues that 'performance risk' may be the most significant risk where goods or services are to be delivered under the contract, and may also be the hardest to assess.

⁵⁵ Other notes from revrecorig conclusions*****