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ACADEMIC PAPERS

Accounting for leases – the problem of rent reviews in capitalising lease liabilities

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Abstract In 1996, an International Accounting Standards Committee (IASC) working party suggested that current methods of accounting for leases should be changed and in 1999 this work culminated in a position paper from the UK Accounting Standards Board (ASB) which made a number of suggestions for consultation (ASB, 1999). The paper assumes that the overall thrust of the proposed changes will be accepted and that will mean that occupying lessees will be required to capitalise the liability to pay rent for their lease and place that liability on the balance sheet. It will also require that property owners identify the value of the lease and the residual property value separately. These are by no means the only issues that are raised by the position paper but it is the implications of these two proposals for valuation methodology that is the subject of this paper. The property industry response in the UK to these two proposals is outlined and it shows that a minimalist approach is recommended, which incidentally is the preferred approach of the UK ASB. This paper argues that market valuations should already be carried out by techniques that attempt to identify the different values of the lease and the residual property value. The minimalist approach will replace one missing set of information with a misleading set, meaning that the IASC attempt to improve the ability of accounts to provide a "fair view" of companies will be thwarted. Alternative valuation models should be adopted which accurately appraise the assets and liabilities distributed by the lease and also identify the residual property value. Conventional market valuation approaches do not work in this context.

1. Introduction

In 1996, a special report by the group known as G4 + 1 put forward a new approach to the accounting for leases (McGregor, 1996). This group is made up of representatives of the accounting standard setting bodies of the UK, USA, Australia, Canada and New Zealand. The group thus represents organisations that have a common objective of providing quality financial reporting standards for the primary purpose of providing information useful to capital market participants. The group also has the objective, amongst others, of seeking common solutions to financial reporting issues.

The distinction between finance and operating leases is one such issue and is fully discussed in Goodacre (2001) who identifies that the current lease accounting standard is SSAP 21. A lease which transfers substantially all of

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the risks and rewards of ownership to the lessee is a finance lease while a lease that does not transfer substantially all of the rights and rewards is termed an operating lease. At present, only finance leases have to be shown as an asset and liability on the balance sheet. Operating leases require the lessor to reflect the ownership of the asset but the lessee only has to place the periodic rent payment on the profit and loss account as a expense. Beatie *et al.* (1998) suggested that operating leases outnumber finance leases in the UK by 18 to 1. In particular, most property leases are currently classified as operating leases. Different countries have different definitions of what constitutes operating or finance leases so at present the same lease could be accounted for differently in the different places (Jones Lang LaSalle, 2000).

The G4 + 1 proposal is that all leases should be treated as finance leases. This paper assumes that this overall principle will be accepted. A number of commentators from the property industry also appear to take this view and argue for the principle (Jones Lang LaSalle, 2000; RICS, 2000). It is interesting to note that the discussion in the UK property press has invariably concentrated on the effect of the proposals and not on arguing against the logic of them.

This proposal will therefore necessarily affect the majority of property leases and this will have a significant impact on accounting for property leases, in particular in the UK. Not only are the majority of property leases treated as operating leases, up to 1990, the vast majority of the UK quality leased property stock was let on standard institutional leases which attempted to transfer substantial proportions of the property risk to the tenant. The standard lease was for 20 to 25 years with five yearly upwards only reviews and a full transfer of all repairing and insuring obligations to the tenant. In 1990, around 90 per cent by value of the investment property databank was let on these terms (Crosby *et al.*, 2000). The transfer of risks and rewards of ownership is therefore substantial.

During the 1990s, lease lengths fell significantly and break clauses appeared, so transferring much of the risk back towards the landlord. By 2000, the proportion on 20 year plus leases was around a third by value (BPF, 2001). But UK leases are still substantially longer than most other countries in the world and in all of the other G4 + 1 countries so the impact is greater.

Another development relevant to the discussion on lease accounting is that since the mid 1990s, the difference between the value of leases and residual property values is better understood in UK property investment markets. They are now considered as part finance and part property investments for the first time and, even more recently, attempts have been made to securitise the various components of the property cash flow. The current lease rent capitalised to the end of the lease is considered a bond secured on the tenant covenant and not subject to traditional "property" risk. The second part of the cash flow is the right to possible increases in rent at each rent review between now and the end of the lease, still secured on the tenant covenant and the upwards only provision. The third element is the property reversion or residual value at the end of the lease. As lease lengths shorten and/or breaks appear, the

property residual value increases at the expense of the lease value. The irony is that the proposal is forcing a new appreciation of lease value at precisely the point in time when the least substantial transfer of risk and rewards is taking place in the UK market due to changing lease structures.

This paper addresses some of the appraisal implications of the proposals. It identifies how the UK Accounting Standards Board (ASB) differs in its proposed application to property leases than other countries. The treatment of reviews is the principal difference examined.

The objectives of the paper are to:

- (1) review the international lease accounting proposals in the context of property leases and review UK property market responses to them;
- (2) determine the valuations required which would fulfil the objectives of the proposals;
- (3) compare various market valuation methods to these requirements; and
- (4) suggest which of these most accurately and rationally determine accounting values within the proposals.

Before reviewing the proposals, the approach to appraisals in the UK needs brief introduction. At present, the equivalent or all risks yield approach to valuation still dominates market valuation practice in the UK (Baum and Crosby, 1995). Despite the aforementioned attempts to differentiate between the various components of the cash flow, the physical nature of the UK property stock (low rise) and the high levels of trading produce a wealth of comparative transaction evidence of similar uncomplicated property assets, a recipe for simplistic valuation methodology being successfully applied. This methodology is not explicit concerning future cash flows but assumes all prospective events are implicit in the price and in the all risks yield applied to the income and current rental value to identify price.

This approach may hamper the application of more sophisticated attempts to deal with situations which require detailed appraisal of the different elements which make up the prospective cash flow, and may lead to simplistic solutions being suggested for appraisal issues. This appears to have happened in the case of lease accounting reform.

2. The proposals

The overall objective of the new lease accounting proposals is to record, at the beginning of the lease, "the fair value of the rights and obligations that are conveyed by the lease" (ASB, 1999, p. 33). The ASB paper also suggests that the:

Fair value of the rights obtained by the lessee cannot be less than the present value of the minimum payments required by the lease (assuming that the lease is negotiated on an arm's length basis) (ASB, 1999, p. 33).

In addition, the ASB paper suggests that the benefits to the lessor are the lease payments and the residual value of the asset. The lease has had the effect of

changing some of the asset into a financial asset (ASB, 1999, p. 77). The ASB take the view that the reporting of lessor's assets would be more transparent if the financial asset and the residual amount were both reported.

Therefore, in respect of property leases, they propose that the lessee determines the present value of the lease rents for the term of the lease (this paper does not address issues on liabilities other than rent) as a liability. They also propose that, at the beginning of the lease, the lessee's asset can be assumed to be the same amount as the liability for a transaction negotiated on an arm's length basis (ASB, 1999, p. 33). This may be conceptually correct at the beginning of the lease where the rent represents a fair payment for the benefits of the lease, this situation will not necessarily hold at any other time during the lease, for example if a lessee needs to account for a lease which has just been purchased on assignment part way through its term and entered into the accounts

They also propose that the lessor determines the fair value of the finance receivable during the lease plus the residual property value thereafter. At present, no split between the lease and the residual property value is required. Fair value is defined in IAS 39 as "the amount for which an asset could be exchanged or a liability settled . . ." (ASB, 1999, p. 107).

Jones Lang LaSalle (2000) suggest that the proposals demand symmetry between lessor and lessee with the present value of the liability of the lessee being equal to the finance receivable by the lessor. They believe that this concept is difficult to achieve in respect of property leases.

Goodacre (2001) suggests that a number of features of property leases "create difficulties for accountants, in particular, break clauses, renewal options, contingent rental and rent reviews". In addition to the long leases with reviews, UK leases often contain breaks and occupiers have the right to renew leases so many of these issues are of more concern to the UK than other G4 + 1 countries. Therefore it is not surprising that there are some differences between the UK and the rest. This paper addresses the most obvious difference; the treatment of contingent rentals.

Contingent rentals are where leases may require lessees to pay additional amounts that are not fixed in advance. There is some detailed argument in the ASB paper over which events should be treated as contingent upon another event outside of the original contract, and those that confer the same rights as at the beginning of the lease but at an amended price. Where rent reviews within leases are present, they represent unavoidable events within the term of the lease and do not add or subtract from the liabilities under the lease. Problems relating to lease expiry and break clauses seem more easily resolved as they are examples of where the lease liability can be terminated by the tenants. Any assessment of fair value at the beginning of the lease should therefore not extend beyond the existing lease expiry, even where a right to renew exists, or break date, if one is included in the lease. However, the nature of the break may require some scrutiny particularly concerning operation of

breaks, but this is a drafting issue rather than an assessment issue and therefore not a concern of this paper.

Within the ASB proposals, two alternatives to addressing the rent revision problem have been suggested. The first is that where the minimum rental under the lease is clearly not representative of the value of the rights and liabilities under the lease, these additional amounts need assessing. The alternative view is that the minimum rental should be capitalised and no additional liability assessed until the review has occurred (ASB, 1999, p. 44). A related principle adopted by the ASB paper is that the value or liability of a lease with contingent rentals could be found by assessing the rent of a similar lease which had no provision for contingent rentals.

As the paper discusses the assets and liabilities created by the granting of the lease at the beginning of the lease, there is obviously a need to consider the calculations necessary to implement the proposals and the alternatives at this point. In addition, acceptance of the proposals will also require some calculation of the assets and liabilities during a lease:

Under the group's view of the treatment of contingent rentals that vary in line with prices, initial estimates . . . would need to be reviewed at each balance sheet date, whether or not a rent review date had been reached (ASB, 1999, p. 47).

The calculations that are therefore required are the assets and liabilities, both at the beginning and during leases, and these two issues are examined in this paper.

The final issue is the discount rate that is needed to capitalise cash flows. The ASB propose that the rate applied by lessees should be:

- (1) "an estimate of the lessee's incremental borrowing rate for a loan of similar term and with the same security as is provided by the lease"; or
- (2) "the rate implicit in the lease when it is known by the lessee and represents a reasonable approximation in [point (1)]."

They state that the lessor's and the lessee's borrowing rate should be the same because the lessor is open to the lessee's credit risk within the transaction. Adopting the same rate creates the symmetry required by the proposals between lessee's liabilities and lessor's lease assets or "finance receivable".

To summarise the proposals, there is a need for the present value of the liability of a lease to be assessed for the lessee's balance sheet. This is assumed to be the same as the value of the asset awarded by the lease to the lessee at the point of granting the lease. The lessor will be required to assess the fair value but also will be required to assess the finance receivable from the lease and the residual asset value after the lease terminates separately. The rate at which cash flows are discounted will be based upon a "lessee's" rates of interest.

The minimum lease payment approach to the contingent rentals issue is preferred by the UK ASB and has also been supported by the major professional institution within the UK property market, the Royal Institution of Chartered Surveyors (RICS). In their response (RICS, 2000), the RICS state that

the “initial asset and liability should reflect only the present value of the minimum payments under the lease”. One of the reasons for this view is the belief that it is the:

Only method which we believe is consistent with the philosophy of the proposals and achieves the objectives of transparency and consistency by reducing the volatility which would be caused by introducing subjectivity through the need to predict future growth rates.

This paper questions both the recommendation and the reasons for the above statement. It argues that the use of the minimum rental level approach will lead to inconsistency. It will neither give a fair view of the liability of the lessee, the finance receivable by the lessor nor the residual amount of property asset value, the three main reporting requirements of the ASB proposals. It also addresses the valuation issues involved and suggests that the simple market valuation models necessary to compute these three requirements already exist, with adaptations in everyday use in UK practice and included in the menu of most UK valuation computer systems.

3. Application of conventional income capitalisation models

3.1 Assets let at full rental value

The market valuation of investment properties is normally undertaken by reference to the investment method of valuation. In the UK, this method is applied within the context of the choice of a perpetual capitalisation rate applied to the current rental value. It is really a comparison-based model as the capitalisation rate is chosen by reference to similar property investments let on similar leases (see Baum and Crosby (1995) for a critique of practice). In the case of an investment property let at its full rental value, fair value can be correctly assessed by reference to comparison values if other fully let properties have been sold and valuers/appraisers can derive capitalisation rates/all risks yields/equivalent yields from the transaction.

Where a lease is in place, the model capitalises separately the rent payable until the end of the lease and the residual rental value receivable thereafter. This model would appear to be useable for the appraisal of the lessor’s finance receivable from the lease (the term value) and the residual value. The value equals:

$$V = r \left[\frac{1 - (1 - k)^{-n}}{k} \right] + \frac{R}{k(1 + k)^n},$$

where:

- n = unexpired term to next review or expiry, whichever is earliest;
- r = the rent under the existing lease;
- R = the estimated current rental value; and
- k = the capitalisation rate/all risks yield/equivalent yield.

Where $r = R$ (fully let properties), the model can be simplified to R/k but for the purposes of this issue the value of the parts is required.

The conventional UK application of this model is set out in Table I.

Lease of five years let at a rent of £75,000 per annum (assumed to be payable annually in arrears). The £75,000 is deemed to be the rental value of the property. Capitalisation rate of 6 per cent observed from similar fully let property on similar leases

Valuation of term of lease	£75,000	
PV £1 pa for five years @ 6 per cent	4.2124	
Term value		£315,927
Valuation of residue	£75,000	
PV £1 pa in perpetuity @ 6 per cent	16.6667	
PV £1 in five years @ 6 per cent	0.7473	
Residual property value		£934,073
Total value		£1,250,000
Value of finance receivable	£315,927	
Value of property residue	£934,073	
Market value of property	£1,250,000	

Table I.
Example 1 valuation
(i). Five years
unexpired

Had the lease been for ten years with a review after five years, the market valuations of the two situations above would have been the same (assuming the original market evidence of a 6 per cent capitalisation rate was obtained from similar properties let on similar lease terms, now ten years and that the rental value of a ten year lease was the same as for a five year lease). However, for accounting purposes, the valuations could be amended to that shown in Table II.

If the model was an accurate reflection of the value of the term and reversion the two values for accounting purposes could be extracted from the two valuations as indicated. However, this model has been challenged continually over the last 30 years for its primary valuation purpose, market valuation. The grounds of the challenge include the point that the choice of an overall capitalisation rate makes the implicit assumption that the lease income has a risk equal to that of the reversionary property value. However, this is obviously

Valuation of first lease period	£75,000	
PV £1 pa for five years @ 6 per cent	4.2124	
Term 1 value		£315,927
Valuation of second lease period	£75,000	
PV £1 pa for five years @ 6 per cent	4.2124	
PV £1 five years @ 6 per cent	0.7473	
Term 2 value		£236,079
Valuation of residue	£75,000	
PV £1 pa in perpetuity @ 6 per cent	16.6667	
PV £1 in ten years @ 6 per cent	0.5484	
Residual property value		£697,993
Total value		£1,250,000
Value of finance receivable	£552,006	
Value of property residue	£697,993	
Market value	£1,250,000	

Table II.
Example 1 valuation
(ii). Ten years
unexpired

not true as the current lease income is secured on the tenant's covenant and the income is known at the start of the lease. The reversionary value is an estimate of the value of the rent obtained on reversion. This rent is unknown and where the rent change coincides with a lease expiry, may be obtained from a different tenant who may take some time to find. The risks of these two distinct sources of value would rarely be expected to be the same and thus the use of one yield to capitalise both estimates of cash flow should only be used with caution. This capitalisation yield is called the all risks yield precisely because it does not discriminate concerning the different nature of the lease term and the residual value and is a weighted average of two rational yields that might more logically be applied to each part. The model has therefore been seen to value the whole crudely correctly (tested against transactions) at the expense of errors in the parts. It will not therefore satisfy the fair value objective of the accounting proposals if the proposal maintains the objective of showing the parts of the value explicitly. The basis of the capitalisation rate bears no relation to a lessee's interest rate, as suggested within the accounting paper.

However, if one of the two parts of the valuation/appraisal can be assessed rationally and the overall capitalisation rate is assumed to correctly identify fair value of the whole asset, the value of the second other part can be assumed also to be correct. Before looking at the alternative appraisal models to see if they can offer a more appropriate approach, the problem with properties not let at their full rental value is briefly examined.

3.2 Assets let at less than full rental value

The situation worsens when the property is not let at its full rental value. Assume the introduction into the accounts of the previous examples but at a time when the leases had been running for two years so they had three years and eight years to expiry. In that time rents have increased by a third and now the rental value is £100,000 per annum (Tables III and IV).

Where comparables of fully let all risks yields exist, the comfort of the assumption that another fully let property is correctly appraised to market value can be maintained. Where fully let all risks yields are used to value reversionary (or over-let) properties as above, even this comfort zone is

Valuation of term	£75,000	
PV £1 pa for three years @ 6 per cent	2.6730	
Term value		£200,476
Valuation of residue	£100,000	
PV £1 pa in perpetuity @ 6 per cent	16.6667	
PV £1 in three years @ 6 per cent	0.8396	
Residual property value		£1,399,365
Total value		£1,599,841
Value of finance receivable	£200,476	
Value of property residue	£1,399,365	
Market value	£1,599,841	

Table III.
Example 2 valuation
(i). Three years
unexpired

Valuation of first lease period	£75,000	
PV £1 pa for three years @ 6 per cent	2.6730	
Term 1 value		£200,476
Valuation of second lease period	£100,000	
PV £1 pa for five years @ 6 per cent	4.2124	
PV £1 three years @ 6 per cent	0.8396	
Term 2 value		£353,678
Valuation of residue	£100,000	
PV £1 pa in perpetuity @ 6 per cent	16.6667	
PV £1 in eight years @ 6 per cent	0.6274	
Residual property value		£1,045,687
Total value		£1,599,841
Value of finance receivable	£554,154	
Value of property residue	£1,045,687	
Market value	£1,599,841	

Table IV.
Example 2 valuation
(ii). Eight years
unexpired

removed. If the capitalisation rate applied to the two parts is incorrect, there can be no assumption that the errors cancel out (Baum and Crosby, 1995).

The inadequacy of the yield choice for each part is highlighted even further in part (ii) of this example, where the lease has a review within it. The term is a fixed income with the covenant strength of the tenant highly significant in assessing the risk of the income. The yield applied to the second part of the cash flow is also affected by tenant covenant strength but, in addition, reflects value change potential of the review and the uncertainty surrounding that change, including obsolescence factors. The final reversion is also affected by value change potential but includes re-letting prospects and obsolescence factors. Timing of the different stages is also relevant.

3.3 Minimum rent approach

The examples above assume that where the lease has a review, the rent is increased to the current rental value, any future value change over and above that is implied in the capitalisation rate. Where the property is let at its current rental value, no rent increase is applied at review, where it is let at less than current rental value, an increase to rental value is included. The proposal of the UK ASB appears to be that the rent liability is capitalised to the lease end or break with no attempt to identify rent changes to current rental value or any growth prospects.

This minimum rent approach would produce the following lease liability/values using conventional approaches to method and yield choice. Where the lease was for three years unexpired, the lease/property residual split is the same as 2 (i) above. But where the lease is for eight years, the current rent payment/liability is extended for another five years after the review in three years producing the following change to the lease/property residual split (Table V).

3.4 Summary of application of conventional models

The UK ASB stance supported by the RICS suggests that, where a review is scheduled, the existing rent should be adopted in the assessment of the finance receivable. Table VI sets out the different results achieved between lease and property residual values by applying conventional valuation models and the ASB proposals.

Three main issues arise from this discussion of the proposed lease accounting rules and the current approaches to market valuation applied in UK practice. They are:

- (1) the need to adopt better market valuation methods which more accurately appraise the value of the lease and the residual property asset after expiry;
- (2) the adoption of tenant based interest rates to ensure consistency between the valuation from lessor's and lessee's viewpoint;
- (3) the problem with adopting a minimum rent approach in deciding on appropriate divisions of lease and property residual values.

The first of these has been extensively discussed in the UK valuation literature and alternative approaches are considered later in the paper. First the discount rate issue is discussed.

4. Discount rate

Unless the interest rate implicit in the lease can be observed or determined, the accounting proposals are that the rate to be determined is the incremental borrowing rate for a loan of similar term and with the same security as is provided by the lease. The ASB (1999, p. 67) paper observes that the lessor's risk will be different where a residual value risk exists but if the residual value is to be assessed separately, then this is not an issue. The major question which arises is therefore whether the tenant's incremental borrowing risk should also be the basis for the choice of the lessor's discount rate based upon the risk attached to the cash flow from the lease.

In the finance literature on lease-or-buy decisions (see Schallheim, 1994) emphasis is placed on the equivalence of leasing to buying-with-loan. The argument is that, as far as the lessee is concerned, the rental payment is:

- fixed and known in advance;
- has immediate consequences to the lessee's business if not paid; and
- is a direct cost that will reduce the tax liability of the firm.

Rent	£75,000	
PV £1 pa eight years @ 6 per cent	6.2098	
Value of finance receivable		£465,735
Note: If residual property value equals market value less finance receivable, RPV = £1,134,106		

Table V.

	Val 1 (i) Five year lease at full rent	Val 1 (ii) Ten year lease at full rent	Val 2 (i) Five year lease with three years unexpired	Val 2 (ii) Ten year lease with eight years unexpired	Val 2 (i) Lease with three years unexpired, minimum payments	Val 2 (ii) Lease with eight years unexpired, minimum payments
Value of lessee liability and lessor finance receivable	£315,927	£552,006	£200,476	£554,154	£200,476	£465,735
Residual value of property	£934,073	£697,993	£1,399,365	£1,045,687	£1,399,365	£1,134,106
Market value	£1,250,000	£1,250,000	£1,599,841	£1,599,841	£1,599,841	£1,599,841

Table VI.
Market values, lease
accounting values and
property residual
values – conventional
income capitalisation
models

The analysis thus proceeds by specifying the equivalent loan that can be obtained through the same net-of-tax cash flows. In the case of a secured loan (which might be available secured on the property of the lessee), failing to meet the interest or repayment of principal for the loan would be just as serious for the borrower as failing to meet the rent for the lease would be for the tenant. It is thus reasonable to argue that the rental cash flows for a property lease should be discounted at the same interest rate as the repayment of a loan secured on the same property by the specified tenant.

Of course there are differences; the most obvious being that corporate debt is often securitised and thus can be traded, lenders may thus reduce their exposure to borrower default by selling part or all of the loan in the bond market. In contrast, the landlord of a property lease may find it difficult to sell the remaining portion of a property lease, but recent developments in the UK have seen the securitisation of the rental income from property leases and so this difference diminishes. The liquidity of the market for properties let on short-term property leases is anecdotally considerably less than the equivalent market for corporate bonds. Against that issue, there is a compensating factor that a property let to a tenant that has defaulted may be rather more easily relet than trying to realise the assets on which a loan is secured. Corporate debt may be bundled into one issue which is secured against several properties and it may be more difficult to realise the assets supporting the whole loan than re-letting individual properties. On balance therefore, especially in a UK context in which the liquidity of the corporate bond market is low, that the interest rates applicable to the rental cash flows and the corporate bond should be similar.

This in turn raises the issue of identifying the rental value of a lease with the tenant occupying the property. In the property lease literature (see Grenadier, 1995), emphasis is placed on the value of occupying property. It is argued that in equilibrium, the market will recognise that the occupancy of a property will be priced in order to equate the value to the landlord. A risky tenant would thus expect to pay a higher rent than a tenant which offered little or no prospect of default. This implies that the rent as well as the appropriate discount rate will depend on the tenant covenant – a low risk tenant will pay a lower rent, but the lease will be valued using a lower discount rate to provide the same value as a high-risk tenant paying a higher rent but discounted using a higher discount rate. Unfortunately, while very attractive (to landlords) tenants may negotiate lower rents at the outset of leases, the UK legal framework at rent review eliminates this difference in review rents.

Table VII sets out values of lessee's liabilities and lessor's finance receivables assuming all leases are valued at a tenant's discount rate of 8 per cent where a market capitalisation rate is still 6 per cent. The values assume that the overall market values in the bottom row are assessed by the same market valuation methods set out in the previous section and the residual values are the market values less the lease values. Assessing the residual values at current rental values capitalised and discounted at the tenant's

	Val 1 (i) Five year lease at full rent	Val 1 (ii) Ten year lease at full rent	Val 2 (i) Five year lease with three years unexpired	Val 2 (ii) Ten year lease with eight years unexpired	Val 2 (i) Lease with three years unexpired, minimum payments	Val 2 (ii) Lease with eight years unexpired, minimum payments
Value of lessee liability and lessor finance receivable	£299,453	£503,236	£193,282	£510,236	£193,282	£430,998
Residual value of property	£950,547	£746,764	£1,406,559	£1,089,605	£1,406,559	£1,168,843
Market value	£1,250,000	£1,250,000	£1,599,841	£1,599,841	£1,599,841	£1,599,841

Table VII.
Market values, lease
accounting values and
property residual
values – using tenant's
incremental borrowing
rate for lessor's finance
receivable and lessee's
liability

discount rate would be irrational in the extreme and, when added to the lease values, produce total values which bear no relation to market reality.

These valuations work at the simple level of a lease without reviews. The value of the unexpired term of the lease is the rent capitalised at the tenant's borrowing rate and this is a fair reflection of the fixed rent liability of the lessee. However, for the example with reviews before the end of the lease, they do not give a true value of the lease, and therefore of the residual amount. The next section of the paper discusses alternative market valuation approaches and then carries out the appraisals using one of them.

5. Alternative appraisal techniques

The valuation literature suggests two strands which might be adopted to produce more rational approaches to the appraisal problems raised by the accounting proposals; option pricing and explicit cash flow models. Option pricing is still being developed in the context of real estate pricing in the academic literature and has yet to gain any widespread acceptance in practice. Given the practical nature of the issue in question, and to give any subsequent work on option pricing criteria for testing in terms of operability in practice, the explicit cash flow alternative is developed in this paper.

As indicated above, more explicit cash flow models applied to the market valuation issue are well developed in the UK. The three main alternatives are:

- (1) short cut DCF;
- (2) the real value approach (Baum and Crosby, 1995); and
- (3) arbitrage (French and Ward, 1996a, b).

Crosby (1996) reconciled all three and found that the major difference was the basis of the choice of interest rate. In short cut DCF and real value, the choice of discount rate was based upon a risk adjusted nominal risk free rate, with an average risk adjustment being applied to both the value of the lease income and the residual value of the property asset. Arbitrage adopted a risk adjustment based solely on the ability of the tenant to pay the lease rent and the model assumed that the residual property value was, in essence, the observed value of the whole less the value of the lease term. All three models could be adapted to using tenant based yields to capitalise the lease income and Crosby *et al.* (1997) illustrate either growth explicit (short cut DCF) or implicit (real value and arbitrage) approaches are equally valid.

As all three reconcile, the approach to be adopted in this paper is the short cut DCF because it is the most recognisable to UK practice and is in the major proprietary valuation software. The short cut DCF model can be set out as follows:

$$V = r \left[\frac{1 - (1 + e)^{-n}}{e} \right] + \frac{R(1 + g)^n}{k(1 + e)^n},$$

where e is the discount rate and g is the annual growth rate.

To summarise this debate, these models, while using observed market prices as their basis, can adopt a more rational choice of yield for the lease income. The accounting proposals appear to demand a fair value of the lessor's interest, a breakdown of the value of the capitalised lease rent assuming a tenant's discount rate (lessor's asset and lessee's liability) and an assessment of the residual property asset value after lease expiry. The alternative market valuation techniques do appear to be close theoretically to the requirements.

6. Alternative market valuations and reconciliation with proposed accounting values

As indicated above, the approach adopted is the short cut DCF using tenant based yields as the target rate of return, as discussed in the valuation and arbitrage papers. It is assumed that the risk adjusted discount rate reflecting the tenant's incremental borrowing rate is 8 per cent, as in the amended valuations in section 4 above. The short cut DCF model is available on most UK proprietary valuation software.

The short cut DCF model requires the calculation of the rental growth rate implied within the all risks yield. This is the difference between the yield adopted as the discount rate (tenant's borrowing rate) and the all risks yield, taking into account the periodic nature of the cash flow. The growth rate is not a forecast, rather an assessment of the growth needed to enable investments to perform at the target rate given the observed transaction price. If the target rate does not reflect the risk attached to the reversion, as in this case, then the risk is transferred to the assessment of rental growth. Where a tenant's fixed income borrowing rate is used as the target rate, the implied growth rate is lower than that actually expected. This is compensated for by assessing the risk rate to discount it at a figure which ignores the uncertainty of what the growth is really going to be. The cash flow can now be estimated at the reduced level until lease expiry and discounted at the tenant's incremental borrowing rate. This will assess the finance receivable and tenant's liability of the lease, taking into account the prospects for value change at review and the uncertainty attached to the level of rent. The residual value can be capitalised out at the all risks yield from the market discounted at the target rate, with the uncertainty of the inflated rental value taken care of by a reduced growth rate as before. Apart from the issue of added risk at the lease expiry compared to the a rent review (addressed in the next section), this model constitutes a rational, defensible appraisal of both lease value and residual value, as well as a defensible market valuation (see Baum and Crosby (1995) for a discussion of the relative merits of market valuation by conventional all risks yield approaches and the alternatives discussed here) (Table VIII).

Table IX sets out the different lease value/liabilities and residual values from a conventional capitalisation rate approach, a conventional approach using the tenant's discount rate and a DCF alternative.

It indicates that the use of conventional market valuation techniques as practised in the UK gives an unrealistic, irrational answer to the lease

Example 1 (i): five year lease @ £75,000 pa which is also the rental value

Implied growth: ARY of a rack rented/fully let similar property 6 per cent;
discount rate 8 per cent; reviews every five years = 2.2437 per cent pa

Valuation:

Term rent	£75,000	
PV £1 pa five years @ 8 per cent	3.9927	£299,453
Reversion to residual value	£75,000	
Inflate at 2.2437 per cent pa for five years	1.1173	
Inflated rent	£83,800	
PV £1 pa in perpetuity @ 6 per cent	16.6667	
PV £1 in five years @ 8 per cent	0.6806	£950,547
Total value		£1,250,000

Example 1 (ii): Lease for ten years @ rent and rental value of £75,000 pa with market review after five years

Valuation:

Term rent	£75,000	
PV £1 pa five years @ 8 per cent	3.9927	£299,453
Reversion to second term	£75,000	
Inflate at 2.2437 per cent pa for five years	1.1173	
Inflated rent	£83,800	
PV £1 pa for five years @ 8 per cent	3.9927	
PV £1 in five years @ 8 per cent	0.6806	£227,715
Reversion to residual value	£75,000	
Inflate at 2.2437 per cent pa for ten years	1.2484	
Inflated rent	£93,632	
PV £1 pa in perpetuity @ 6 per cent	16.6667	
PV £1 in ten years @ 8 per cent	0.4632	£722,831
Total value		£1,250,000

Example 2 (i): three years unexpired on five year lease @ £75,000 pa, rental value £100,000 pa

Implied growth: ARY 6 per cent; discount rate 8 per cent;
reviews every five years = 2.2437 per cent pa

Valuation:

Term rent	£75,000	
PV £1 pa three years @ 8 per cent	2.5571	£193,282
Reversion to residual value	£100,000	
Inflate at 2.2437 per cent pa for three years	1.0688	
Inflated rent	£106,883	
PV £1 pa in perpetuity @ 6 per cent	16.6667	
PV £1 in three years @ 8 per cent	0.7938	£1,414,122
Total value		£1,607,404

Table VIII.

(continued)

Example 1 (i): five year lease @ £75,000 pa which is also the rental value

Example 2 (ii): eight years unexpired with a review in three years at a rent of £75,000 pa and a rental value of £100,000 pa

Valuation:

Term rent	£75,000		
PV £1 pa three years @ 8 per cent	2.5571	£193,282	
Reversion to second term	£100,000		
Inflate at 2.2437 per cent pa for three years	1.0688		
Inflated rent	£106,883		
PV £1 pa five years @ 8 per cent	3.9927		
PV £1 in three years @ 8 per cent	0.7938	£338,371	
Reversion to residual value	£100,000		
Inflate at 2.2437 per cent pa for eight years	1.1942		
Inflated rent	£119,424		
PV £1 pa in perpetuity @ 6 per cent	16.6667		

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Table VIII.

	Conventional valuation @ 6 per cent	Conventional valuation using tenant's yield on lease (8 per cent)	Proposed alternative market valuation
<i>Valuation 1 (i): five year lease</i>			
Lessor's finance and lessee's liability	£315,927	£299,453	£299,453
Residual value of property asset	£934,073	£950,547	£950,547
Market value	£1,250,000	£1,250,000	£1,250,000
<i>Valuation 1 (ii): ten year lease with five year market review</i>			
Lessor's finance and lessee's liability	£552,006	£503,236	£527,169
Residual value of property asset	£697,993	£746,764	£722,831
Market value	£1,250,000	£1,250,000	£1,250,000
<i>Valuation 2 (i): five year lease with three years unexpired</i>			
Lessor's finance and lessee's liability	£200,476	£193,282	£193,282
Residual value of property asset	£1,399,365	£1,406,559	£1,414,122
Market value	£1,599,841	£1,599,841	£1,607,404
<i>Valuation 2 (ii): ten year lease with eight years unexpired and market review in three years</i>			
Lessor's finance and lessee's liability	£554,154	£510,236	£532,053
Residual value of property asset	£1,045,687	£1,089,605	£1,075,351
Market value	£1,599,841	£1,599,841	£1,607,404

Table IX.
Market values, lease accounting values and property residual values – comparison of different approaches

accounting indicators proposed under any of the four scenarios examined. This is not a surprise. However, it also shows that where a review exists in the lease before expiry, the use of conventional models adopting a rational yield on the lease rent also gives an irrational answer, as it ignores the added value of the review above current rental values.

The simple short cut DCF utilising tenant's yields also has its problems when a review exists in the lease before expiry. There are three different levels

of risk attached to the cash flow; the risk attached to the current rent until expiry assuming the normal upwards only rent review clause exists, the risk of the level of the increase at review and the level of risk of the residual value on lease expiry. Figure 1 illustrates the point. The short cut DCF at the tenants yield makes no distinction between the second and third elements of the cash flow. However, it is obviously more able to account for prospective differences surrounding future cash flows than the conventional approach.

The ASB advocate a minimum reporting stance and the values obtained by the appraisals of lease liability and residual values using this approach at tenant's yields (and using simple capitalisation rate models to obtain market value) are compared to the alternative approach using short cut DCF models in Table X.

It illustrates that the adoption of a minimum reporting standard makes the value apportionment even more unrealistic where there is a market review before expiry. Not only does it ignore future prospects of growth, it ignores any value currently realisable upon re-letting or review.

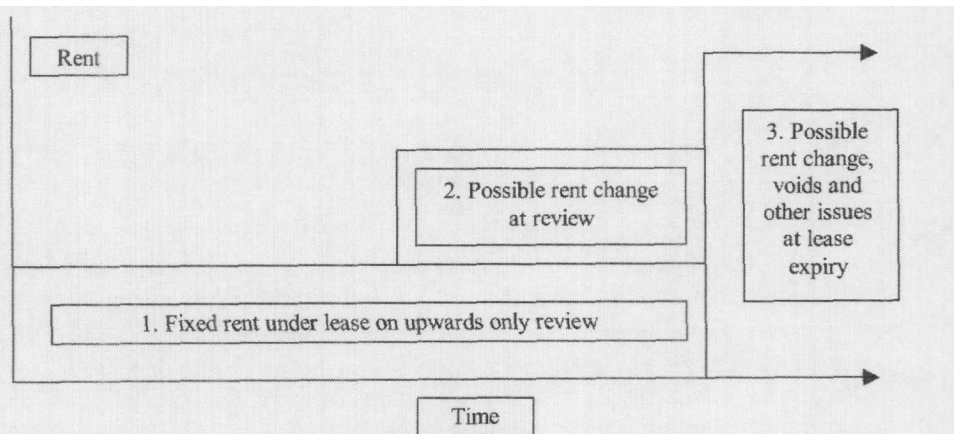
These examples identify the situations where anomalies will be created but do not give any indication of the extent of these anomalies. The final analysis examines the differences which may occur and the causes.

7. Factors causing the identified differences to vary

The factors which may influence the extent of the errors are:

- the level of capitalisation rate;
- the level of discount rate;
- the level of implied growth rate (which is a function of the difference between the discount rate and the capitalisation rate);
- the level of under- or over-renting (the ratio of rent to rental value); and
- the unexpired lease length combined with the number of years to the next review.

Figure 1.
Cash flow and risk profile of a typical UK lease with periodic upwards only rent reviews



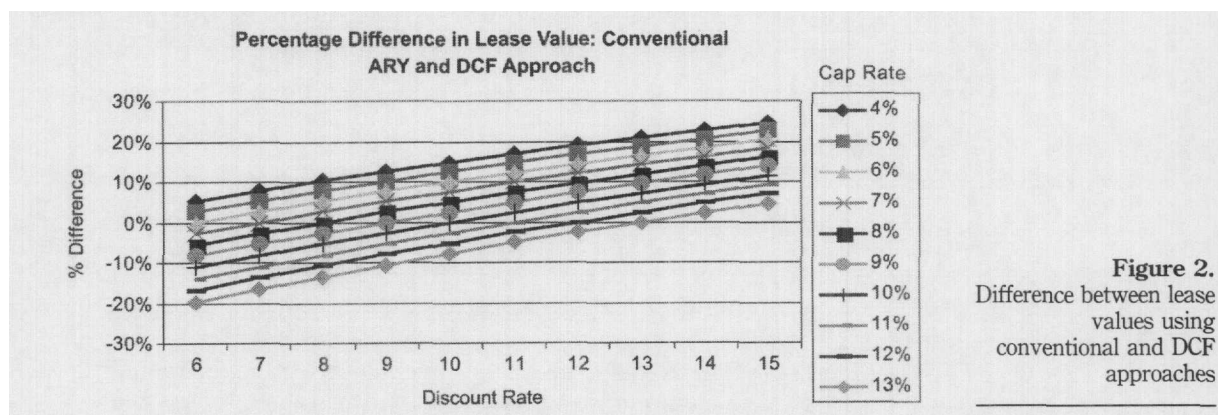
	Proposed alternative market valuation	Minimum reporting @ 8 per cent
<i>Five year lease</i>		
Lessor's finance and lessee's liability	£299,453	£299,453
Residual value of property asset	£950,547	£950,547
Market value	£1,250,000	£1,250,000
<i>Ten year lease with five year market review</i>		
Lessor's finance and lessee's liability	£527,169	£503,236
Residual value of property asset	£722,831	£746,764
Market value	£1,250,000	£1,250,000
<i>Five year lease with three years unexpired</i>		
Lessor's finance and lessee's liability	£193,282	£193,282
Residual value of property asset	£1,414,122	£1,406,559
Market value	£1,607,404	£1,599,841
<i>Ten year lease with eight years unexpired and market review in three years</i>		
Lessor's finance and lessee's liability	£532,053	£430,998
Residual value of property asset	£1,075,351	£1,168,843
Market value	£1,607,404	£1,599,841

Table X.
Market values, lease
accounting values and
property residual
values – comparison of
rational approach with
minimum reporting
values as advocated by
ASB and RICS

The analysis tables are set out in the Appendix to the paper and a review of the results set out below. Differences in the lease value/liability are recorded as the percentage differences of the other results from the DCF approach.

7.1 Target rate and capitalisation rate

Using the basic example of a five year lease with no reviews let at current rental value, Figure 2 illustrates that when using the conventional ARY approach, the lease value is 25 per cent more than the DCF value when a cap rate of 4 per cent and a discount rate of 15 per cent is used, and this difference reverses to 20 per cent when the cap rate is 13 per cent but the tenant's discount rate is only 6 per cent (see Appendix, Table A1). When the



capitalisation rate and the discount rate are the same, obviously the difference is zero. As capitalisation rates and discount rates generate growth rates, the greater the growth rate (ignoring whether it is a positive or a negative), the higher the difference in the lease liability values. With a discount rate of 8 per cent and a capitalisation rate of 6 per cent the difference is 5 per cent. As already illustrated, adopting a lease liability valuation model which adopts tenant's discount rates rather than all risks yields will solve the problem for a lease with no further reviews but will not solve it for a lease with reviews.

7.2 Lease length and reviews in lease

In order to identify the problems by rent reviews not being taken into account, three lease lengths are utilised, ten years with one review after five years, 15 years (reviews five and ten years) and 20 years (reviews five, ten and 15 years) all let at full rental value. The minimum lease value approach is compared to the DCF approach.

For a ten year lease, where the growth rate is positive (the discount rate exceeds the capitalisation rate) the conventional model indicates a lease value/liability up to 25 per cent less than the DCF model for a discount rate of 15 per cent and a capitalisation rate of 4 per cent (high implied growth). Where there is no growth implied at the review, the values are identical. The DCF values fall below the minimum approach where there are implied rental value falls (cap rate higher than discount rate). This assumes they can be operated at the review, which in the UK is not usual due to the domination of the upwards only provision (Crosby *et al.*, 2000). At a discount rate of 8 per cent and a capitalisation rate of 6 per cent, the difference is 5 per cent.

As the lease length gets longer the error obviously increases. For a 15 year lease with a capitalisation rate of 4 per cent and a discount rate of 15 per cent, the DCF valuation of the lease value/liability is 50 per cent higher. At the discount rate of 8 per cent and a capitalisation rate of 6 per cent, the difference is over 9 per cent.

For a 20 year lease, the difference rises to nearly 70 per cent for the discount rate of 15 per cent and the capitalisation rate of 4 per cent, and to 13 per cent for the discount rate of 8 per cent and the capitalisation rate of 6 per cent.

The differences generated by the length of lease extending are set out in Tables AII-AIV in the Appendix and illustrated in Figure 3.

7.3 Reversionary potential or over-renting

The level of under or over-renting at the time of the lease value/liability assessment will increase or decrease the level of difference. Figure 4 illustrates the findings of an analysis which assumes five, ten, 15 and 20 year leases, with upwards only reviews every five years, with rents at 50 per cent, 75 per cent, 100 per cent, 125 per cent and 150 per cent of rental value. All the appraisals adopt an 8 per cent discount rate and a 6 per cent capitalisation rate.

As expected, where the lease has reversionary potential, the errors introduced by the minimum approach are amplified and even where the

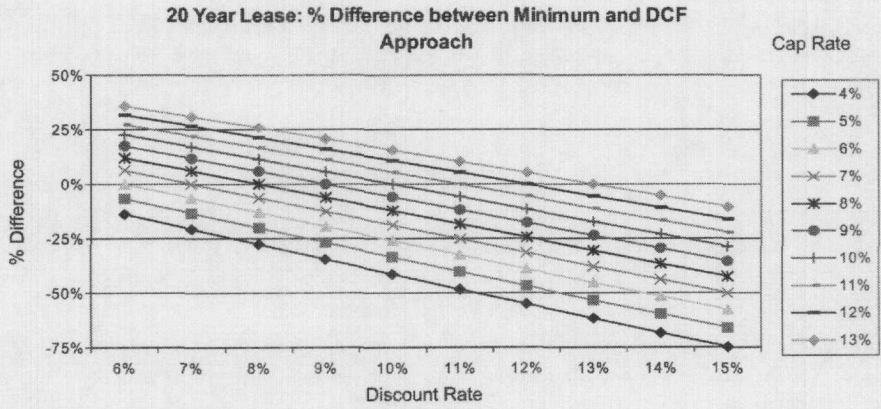
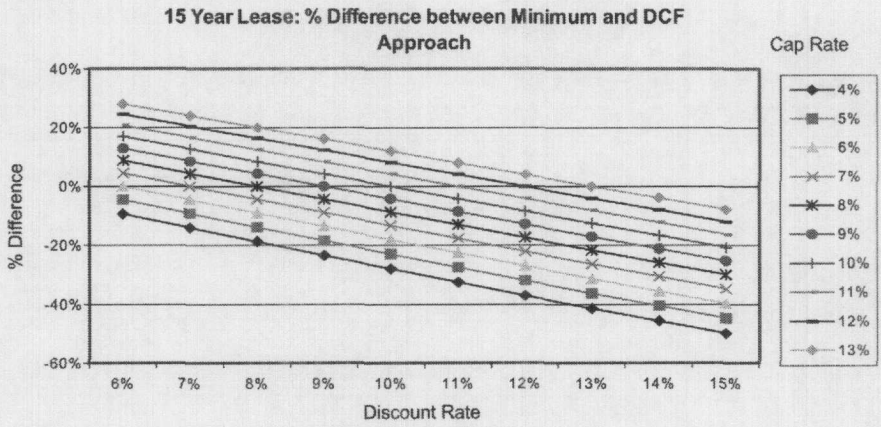
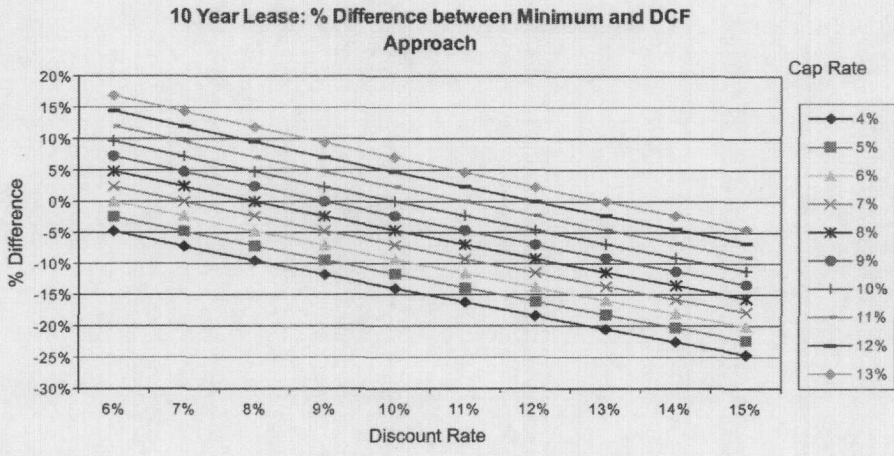
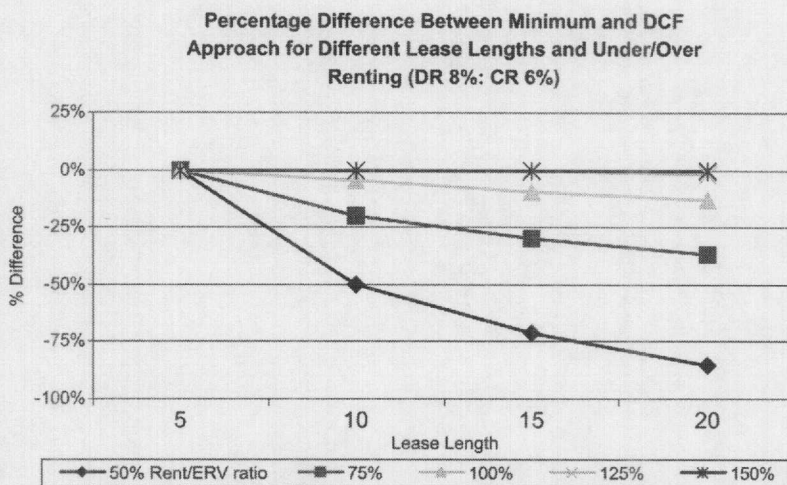


Figure 3.
Difference in minimum
lease value/liability
approach to DCF
approach for ten, 15 and
20 year lease

Figure 4.
Effect of
under/over-renting



implied growth rate is low, the error reaches virtually 100 per cent over a 20 year lease at a rent of 50 per cent of rental value. However, the effect of over-renting is to nullify the error. The rent is unlikely to increase at each review where there are high levels of over-renting and low levels of growth. High future growth rates would increase the frequency of increases and the extent of the increases and so introduce a greater difference than illustrated here.

8. Implications and conclusions

The case studies and further analysis above illustrate that the implications of a decision to adopt the minimum reporting level of the capitalisation of the existing rent payment will in some circumstances lead to an understatement of the lease value and liability (where property prices imply future upward value change). It will therefore also lead to an understatement of the lessor's finance receivable and an over-statement of the residual property asset value, if market value is held as the fair value control. This occurs both at the beginning of a lease where there is a future market review and at any point in the lease where there is a future review to market rental value. For short leases without review at either market rent or below, there is no difference. For leases with reviews the extent of the difference depends on a number of factors. The understatement of liabilities increases as the capitalisation rate the ratio between rent and rental value reduce and discount rate and lease length increase. Given that implied growth is a function of discount rate and capitalisation rate, understatement of lease value and lease liability increases as implied growth increases.

Property market and general economic conditions in the UK at the beginning of the twenty-first century include very low interest rates/target rates, low implied growth rates, low levels of reversionary potential and reducing lease lengths. Under these conditions, adopting the minimum reporting level produces values close to the more rational approach. But any return to the

1980s with higher inflation and higher implied growth rates will make the soft option look increasingly misleading.

The objective of the G4 + 1 group is to provide quality financial reporting standards for the primary purpose of providing information useful to capital market participants. The objective of these specific proposals is to provide a fair value of the rights and obligations conveyed by the lease at the beginning of the lease. The whole point of the proposals is to make more transparent the true state of a company. It is therefore important that the implementation of the proposals is undertaken in such a way to ensure the most accurate information is provided. It is also important that international investors and operators are able to see consistent information in company and investment reports and for the UK to adopt a different approach to all other countries flies in the face of international consistency and transparency.

The examples of leases with rent reviews to market value during the lease term has shown that the proposal supported by the UK ASB and the main institution representing real estate professionals in the UK, i.e. a minimum payment approach, will incorrectly identify the value or liability of the lease payment. If market values continue to be adopted as fair value of investment property for accounting purposes, residual property values, assessed as market value less lease value, will also incorrectly assess the property assets. Any other approach to assessing the residual value will also mislead if it ignores the value implications inherent within current transaction prices. The objectives of the proposals will be defeated as a missing set of information will be replaced with a misleading set.

The support of the UK ASB's line on minimum lease rent appraisal by the UK property institutions also illustrates a rather pathetic response by the UK property valuation industry. The use of simplistic valuation models has been criticised continually over the last 30 years in the UK and other countries have adopted more explicit cash flow approaches more readily for the market valuation role. There are some quite rational arguments for why simplistic all risks yield/capitalisation rate comparative models can work in the heavily traded, low rise, often single tenancy market that categorises many of the commercial markets in the UK. They are therefore heavily utilised for repetitive periodic valuation work for financial reporting and performance measurement purposes. But there is a major explicit cash flow valuation expertise in the UK backed by a strong property research and forecasting industry. Virtually all purchases and sales by property companies and institutions are underpinned by this expertise. Rather than build on this expertise and send a positive message internationally concerning the state of the UK property valuation industry, the response has continued to give the impression that the industry is static and backward looking and incapable of undertaking the kind of appraisals which are considered standard in some other countries.

Conceptually, a number of alternative market valuation approaches exist which can be adapted to perform all of the requirements of the new accounting proposals. They can be used to assess the lease value as distinct from the

residual property asset value and these methods have been operationalised over the last ten years in the UK. Both short cut and full explicit DCF techniques can be used and no specific forecasting of future property values is necessary to utilise them as implied rental growth rates can and should be used for comparable based market valuations. They calculate both lease and residual values and also reconcile these assessments with a rational market value assessment based upon observed values. They do have limitations as they fail to take full account of the different risk profiles at lease expiry and rent review but these limitations are minor compared to the theoretical limitations of the conventional alternatives.

Other relevant techniques exist which can be used to price the lease. But their application to real estate is less well developed and would be more difficult to apply in the short term. Given this ease of application of existing technique, there is no reason why the accounting proposals should alarm either the accounting or appraisal professions in the UK and should be seen as an opportunity to advance the cause of alternative appraisal techniques that take a more explicit analytical approach to all aspects of investment valuation.

The ASB state that the:

Challenge is to devise a method which preserves the fair value information of present accounting practice while also giving information about the underlying nature of those assets as provided by the lease (ASB, 1999, p. 103).

They could deliver this goal if they accepted the rest of the world's proposals for lease accounting. Unfortunately they are currently not fulfilling their own objective. It is clear that alternative market valuation models, which determine a market value of the whole by precise assessment of the lease and the residual asset, can largely deliver the new accounting proposals easily within the confines of a basic market valuation model.

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Appendix. Appraisals of lease value/liability

The situation worsens when the property is not let at its full rental value. Assume the introduction into the accounts of the above example but at a time when the lease had been running for two years. In that time rents have increased by a third and now the rental value is £100,000 per annum.

Where comparables of fully let all risks yields exist, the comfort of the assumption that another fully let property is correctly valued can be maintained. Where fully let all risks yields are used to value reversionary or over-let properties, even this comfort zone is removed. If the capitalisation rate applied to the two parts is incorrect, there can be no assumption that the errors cancel out (Baum and Crosby, 1995).

See Tables AI-AV over page.

Table AI.

	Discount rate (per cent)														
	6	7	8	9	10	11	12	13	14	15					
<i>A. Appraisal of lease value/liabilities assuming ARY valuation at range of discount and capitalisation rates - rent £100, rental value £100, lease term five years</i>															
4	445	445	445	445	445	445	445	445	445	445	445	445	445	445	445
5	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433
6	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421
7	410	410	410	410	410	410	410	410	410	410	410	410	410	410	410
8	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399
9	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389
10	379	379	379	379	379	379	379	379	379	379	379	379	379	379	379
11	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370
12	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360
13	352	352	352	352	352	352	352	352	352	352	352	352	352	352	352
<i>B. Appraisal of lease value/liabilities assuming either minimum approach or DCF valuation at range of discount and capitalisation rates - rent £100, rental value £100, lease term five years</i>															
4	421	410	399	389	379	370	360	352	343	335	335	335	335	335	335
5	421	410	399	389	379	370	360	352	343	335	335	335	335	335	335
6	421	410	399	389	379	370	360	352	343	335	335	335	335	335	335
7	421	410	399	389	379	370	360	352	343	335	335	335	335	335	335
8	421	410	399	389	379	370	360	352	343	335	335	335	335	335	335
9	421	410	399	389	379	370	360	352	343	335	335	335	335	335	335
10	421	410	399	389	379	370	360	352	343	335	335	335	335	335	335
11	421	410	399	389	379	370	360	352	343	335	335	335	335	335	335
12	421	410	399	389	379	370	360	352	343	335	335	335	335	335	335
13	421	410	399	389	379	370	360	352	343	335	335	335	335	335	335

	Discount rate (per cent)														
	6	7	8	9	10	11	12	113	14	15					
<i>A. Appraisal of lease value/liabilities assuming minimum approach valuation at range of discount and capitalisation rates – rent £100, rental value £100, lease term ten years</i>															
4	736	702	671	642	614	589	565	543	522	502					
5	736	702	671	642	614	589	565	543	522	502					
6	736	702	671	642	614	589	565	543	522	502					
7	736	702	671	642	614	589	565	543	522	502					
8	736	702	671	642	614	589	565	543	522	502					
9	736	702	671	642	614	589	565	543	522	502					
10	736	702	671	642	614	589	565	543	522	502					
11	736	702	671	642	614	589	565	543	522	502					
12	736	702	671	642	614	589	565	543	522	502					
13	736	702	671	642	614	589	565	543	522	502					
<i>B. Appraisal of lease value/liabilities assuming DCF valuation at range of discount and capitalisation rates – rent £100, rental value £100, lease term ten years, up/down reviews</i>															
4	771	753	735	717	701	685	669	654	639	625					
5	754	736	719	702	686	671	656	642	628	614					
6	736	719	703	687	672	657	643	629	616	603					
7	718	702	687	672	658	644	630	617	604	592					
8	701	686	671	657	643	630	617	604	592	581					
9	683	669	655	642	629	616	604	592	581	569					
10	665	652	639	627	614	603	591	580	569	558					
11	647	635	623	612	600	589	578	567	557	547					
12	630	618	607	596	586	575	565	555	545	536					
13	612	601	591	581	571	562	552	543	533	524					

Table AII.

Table AIII.

	Discount rate (per cent)														
	6	7	8	9	10	11	12	13	14	15					
<i>A. Appraisal of lease value/liabilities assuming minimum approach at range of discount and capitalisation rates – rent £100, rental value £100, lease term 15 years</i>															
4	971	911	856	806	761	719	681	646	614	585					
5	971	911	856	806	761	719	681	646	614	585					
6	971	911	856	806	761	719	681	646	614	585					
7	971	911	856	806	761	719	681	646	614	585					
8	971	911	856	806	761	719	681	646	614	585					
9	971	911	856	806	761	719	681	646	614	585					
10	971	911	856	806	761	719	681	646	614	585					
11	971	911	856	806	761	719	681	646	614	585					
12	971	911	856	806	761	719	681	646	614	585					
13	971	911	856	806	761	719	681	646	614	585					
<i>B. Appraisal of lease value/liabilities assuming DCF approach at range of discount and capitalisation rates – rent £100, rental value £100, lease term 15 years, up/down reviews</i>															
4	1,063	1,039	1,017	995	974	953	933	914	895	877					
5	1,016	995	975	955	935	916	898	880	863	847					
6	971	952	934	916	898	881	864	848	832	817					
7	928	911	894	878	862	847	832	817	802	788					
8	886	871	856	841	827	813	800	786	773	760					
9	845	832	819	806	793	781	769	756	744	733					
10	806	795	783	772	761	749	738	728	717	706					
11	769	759	749	739	729	719	709	700	690	680					
12	733	724	716	707	698	690	681	672	664	655					
13	698	691	684	676	669	661	654	646	639	631					

	Discount rate (per cent)														
	6	7	8	9	10	11	12	13	14	15					
<i>A. Appraisal of lease value/liabilities assuming minimum approach at range of discount and capitalisation rates – rent £100, rental value £100, lease term 20 years</i>															
4	1,147	1,059	982	913	851	796	747	702	662	626					
5	1,147	1,059	982	913	851	796	747	702	662	626					
6	1,147	1,059	982	913	851	796	747	702	662	626					
7	1,147	1,059	982	913	851	796	747	702	662	626					
8	1,147	1,059	982	913	851	796	747	702	662	626					
9	1,147	1,059	982	913	851	796	747	702	662	626					
10	1,147	1,059	982	913	851	796	747	702	662	626					
11	1,147	1,059	982	913	851	796	747	702	662	626					
12	1,147	1,059	982	913	851	796	747	702	662	626					
13	1,147	1,059	982	913	851	796	747	702	662	626					
<i>B. Appraisal of lease value/liabilities assuming DCF approach at range of discount and capitalisation rates – rent £100, rental value £100, lease term 20 years, up/down reviews</i>															
4	1,305	1,279	1,254	1,229	1,205	1,182	1,159	1,137	1,115	1,094					
5	1,223	1,201	1,179	1,158	1,137	1,117	1,097	1,077	1,058	1,040					
6	1,147	1,128	1,109	1,091	1,073	1,055	1,038	1,021	1,004	988					
7	1,075	1,059	1,044	1,028	1,012	997	982	967	953	938					
8	1,008	995	982	969	955	942	929	917	904	891					
9	946	935	924	913	902	891	880	869	858	847					
10	888	879	870	861	851	842	833	823	814	805					
11	834	827	819	812	804	796	789	781	773	765					
12	783	778	772	766	760	753	747	740	734	727					
13	737	733	728	723	718	713	708	702	697	691					

Table AIV.

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21,2

Under/over-renting	Lease length (years)			
	5	10	15	20

5A. Appraisal of lease value/liabilities assuming minimum approach for different levels of lease length and levels of under- and over-renting – rental value £100, discount rate 8 per cent, capitalisation rate 6 per cent, upwards only rent reviews

50 per cent	200	336	428	491
75 per cent	299	503	642	736
100 per cent	399	671	856	982
125 per cent	499	839	1,070	1,227
150 per cent	599	1,007	1,284	1,473

5B. Appraisal of lease value/liabilities assuming DCF approach for different levels of lease length and levels of under- and over-renting – rental value £100, discount rate 8 per cent, capitalisation rate 6 per cent, upwards only rent reviews

50 per cent	200	503	734	910
75 per cent	299	603	834	1,010
100 per cent	399	703	934	1,109
125 per cent	499	839	1,070	1,246
150 per cent	599	1,007	1,284	1,473

Table AV.