

Education Briefing

Property Valuation in the UK: Implicit versus Explicit Models - the baby and the bathwater

Abstract

Purpose:

The goal of this paper is to comment upon the on-going debate about the preferred use of implicit models of valuation versus their explicit counterparts. The last few decades have seen changing complexities in UK leasing structures, and there is a suggestion that the implicit models are incapable of dealing with these complexities. This paper looks to address the issues and concerns with implicit models.

Design/methodology/approach:

This education briefing is an overview of the pros and cons of both models and collates comments from industry to give an indication of the use of each model.

Findings:

This paper analyses the appropriateness of implicit models of valuation and the areas in which they prove useful. Although, the explicit models prove to be more useful in certain situations, the implicit models are also proved just as useful. The appropriate model needs to be used as appropriate to the property type.

Practical implications:

Rather than seeing implicit and explicit models as “rivals”, they should be seen as two sides of the same coin. Both have advantages and disadvantages. The role of the valuer in practice is to choose the correct model for the valuation task in hand.

Originality/value:

This is a review of existing models.

Keywords:

Implicit, Explicit, ARY, Discount Rate, Valuation methods, Term and Reversion, Layer/Hardcore, DCF, Market Value, Worth

Paper type:

General review.

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“As an art form, valuation had adopted the status of a mystical skill. Closely guarded secrets were passed down from one generation of valuers to another, with the reason for adopting certain practices being explained by years of accumulated wisdom.” (Brown, 1998)

Introduction

The International Valuation Standards Council (IVSC) recognises three main approaches to valuation: the income, cost and market approach (IVS, 2017). All approaches to valuation are attempting to estimate Market Value (MV); the price of the property in the market on the date of the valuation¹.

Within these approaches are different methods (Investment, cost, residual, accounts and comparison) according to the property type and the nature of the property interest. In the case of the investment method, the valuer is determining the present value of the future cash flow and this can be done using implicit or explicit models.

As valuation is such an important aspect of the industry, great emphasis is placed on the valuer by both the lenders and the borrowers to ensure that the valuation is correct. A model that captures the market opinion of price as best as possible is therefore to be preferred.

This paper is looking at the Investment valuation method only and within this method, the preferred technique, in the UK, has been the implicit model.

The Implicit Model

In the UK, the dominant valuation model for investment properties (properties that produce an income and capital change over time) has been the income capitalisation model. This, typically, compares the subject property with similar properties (comparables) in the market to determine at what yield (income/capital value) properties being sold. This yield, by comparison, is called the Net Initial Yield (NIY).

In the UK, the NIYs are analysed and used to derive a yield to be used in the valuation. This is known as the “All Risks Yield” (ARY). The reciprocal of the ARY is known as the “Years Purchase” and this is a multiplier that is applied to the rental income figure (in today’s terms) to determine the capital value.

When the market is buoyant and there are lots of comparables, deriving the ARY from market comparables is relatively easy. The more comparable yield information, the more certain the valuer will be about the ARY derived. However, when limited market evidence is available, this is less easy and the valuer will be more uncertain about the ARY. That said, in such circumstances, the valuer tends to capture the “sentiment” of the market not

¹ It is appreciated that, occasionally, the valuer is required to determine Market Value at a date other than “today”. For example, an historic date for tax purposes.

though comparison but through market experiences and adjusts the ARY to capture where they think the market is today relative to the (possibly) historic NIYs.

This technique is an implicit model as it looks at NIYs in the market to derive a multiplier for today's rent. Any income growth and capital value change in the future is implied and not stated. Effectively, the model is saying that investors are paying (say) 10 times the current rent for such properties expecting that the rent and capital value will grow over time. It is implying the growth (or otherwise) in the future cash flow.

The Explicit Model

A different model is the Discounted Cash Flow (DCF) technique. Here the changes implied in the income capitalisation model are made explicit and the future cash flow is shown. It then uses a discount rate or target rate to present value the future cash flow, including a future sale of the property, to determine the capital value today. This technique is considered to be explicit because the target return of the investor allows for the assumption of growth to be included in the calculation.

The UK Lease Structure and Valuation

A plethora of research has been undertaken on implicit versus explicit models to valuation. Of the research undertaken to date, considerable scrutiny seems to be focused around the use of implicit models to value complex cash flows. Historically, the leasing structure in the UK was dominated by leases of 25 years with upward only rent reviews. These were known as "Institutional leases" and they were very much to the benefit of the landlords as they produced (relatively) secure long term, non-complex, cash flows. There was a great deal of uniformity in such properties as there was a presumption of a long term income flow. Thus a simple pricing model based on comparison (the income capitalisation model) was relatively robust.

However, in the recessionary market of the early 1990s, institutional leases began to get replaced by short-term leases with break clauses and tenant incentives (Crosby et al, 2003) and it meant that the assumption of "income continuity" (Mackmin, 2011) could no longer be made. Indeed, many commentators (Millington, 1994; Scarrett, 2008; Baum, 1995; Crosby et al, 1996) argue that the models used to value these shorter cash flows should capture this change and thus implicit models may be less appropriate.

This led to the cash flows for property investments becoming, potentially, more complex as there is more option for change in tenant and leases in the short term. The changes in the lease structure and addition of increased complexities such as rent-free periods, break clauses and shortened lease length became an argument for switching to explicit models.

Implicit models are, effectively, based on comparison and good comparison relies upon a homogenous market. The more alike the comparables, the more they reflect the same property type as the subject property and the more reliable the (implicit) valuation. But as lease terms diverge and become more disparate, the less reliable the comparable market. The valuer needs to either interpret the comparables more rigorously or use a smaller but more representative subset of comparables. Or both.

Implicit Models of Valuation

Implicit models in valuation commonly refer to income capitalisation, layer/hardcore and term and reversion.

Implicit Valuation – Income Capitalisation - Rack Rented Property

The investment method is an income approach to valuation and income capitalisation is the implicit model that would be used when valuing a rack-rented freehold² in the UK.

Here, the valuer analyses the (Net) Initial Yield of comparables to determine the ARY. The assumption (for the model) is that the subject property is let at the Market Rent and an investor will pay a multiple of that rent for the property. That multiplier, in UK property valuations is known as the "YP in perpetuity"

The calculation is the capitalisation of the income stream into perpetuity, to find the Market Value. If comparable properties produced net Initial yields of 7.5% to 8.5%, these can be reviewed and intuitively weighted to determine an ARY to be used on the subject property. Say, 8%. If the subject property produces a Market Rent of £1 million per annum, then this will produce a multiplier of 12.5. This multiplier captures all the future growth expectations in rental and capital over time. Thus, the capital value of the subject property can be illustrated as £12.5 million before costs. These numbers are shown in Figure 1.

FIGURE 1 - Implicit Income Capitalisation			
Market Rent	£1,000,000		
YP perp @ 8.00%	12.50	Capital Value (CV) before costs	£12,500,000
		less costs at 5.80% ³	£11,814,745
		MARKET VALUE (MV), say	£11,815,000

A criticism of this technique is the way in which the ARY is derived. No two properties are the same so how can the yield of a comparable adequately be reflected in the ARY? Millington (1994, p.84) elaborates on this saying, "the simple assumption that, all other factors being the same, the market evidence of the value of one piece of property at a point in time is automatically a good indicator of the market value of another similar property, itself has to be treated with great caution.

Baum and Crosby (1995, p.107) share their scepticism on implicit models in the following statement:

If plenty of comparables with similar lease structures exist, the method produces solutions which are reasonably based in accuracy, if not rationality. However, as the quality of comparables diminishes the lack of rationality leads to valuations which are not soundly based and leave too much to the intuition of the valuer.

This point will be revisited later in the paper.

² A rack rented property is a UK term for a property just let (at lease renewal or rent review) at MR.
³ The Market Value of the property is the Capital Value (MR x YP) allowing for costs. In this case, it is assumed that the cost of purchase (Fees, Stamp Duty and VAT) is 5.8%. Thus if the investor pays £11,814,745 for the property then the total spend, including fees, will be £12.5m.
 $CV/(1+costs) = MV$.

Implicit Valuation – Reversionary Properties

A reversionary property⁴ is one where the property is currently let at a rent below Market Rent for a certain period of time. The reversion refers to the point when there is either a rent review or a lease renewal and market rent is then achievable.

1) Term and Reversion

Any implicit model of valuing a reversionary freehold can be viewed as a short-cut. The term and reversion model incorporates its growth assumptions into the capitalisation rate or ARY. So when the reversion takes place, growth in the achievable market rent is not taken into account. All rents are expressed in current day terms. In this example, the rent passing is £800,000. The market rent is £1m and the term until the reversion is 2 years. The ARY for a reversionary property is sometimes adjusted for the term or reversion to reflect the perceived difference in the risk profile of each tranche of income. Whilst this is intuitively compelling, it is better to use the same yield on both parts. This is known as the equivalent yield and is the (weighted average) ARY for the subject property (see French, 2011). Thus, the term and reversion model will produce a capital value that is lower than that of a rack-rented valuation above (obviously, as the rent for the first two years is less than MR). This is illustrated in Figure 2.

Figure 2 - Implicit Term & Reversion			
Term			
Rent Passing		£800,000	
YP 2 years @	8.00%	1.78	£1,426,612
Reversion			
Market Rent		£1,000,000	
YP perp @	8.00%	12.50	
PV 2 years @	8.00%	0.86	£10,716,735
Capital Value before costs			£12,143,347
less costs @	5.8%		£11,477,644
Market Value (MV), say			£11,480,000

However, the model relies upon serendipity to determine the value and can only be relied upon when the market is "normal". This is because there is a balancing act taking place in the valuation. The term is valued using a growth-implicit ARY, yet there is no growth on that part of the cash flow. The reversion then utilises the MR in today's terms when there is growth on that rent. Lastly, the present value of the reversion is, again, at a growth-implicit ARY which means that a lower discount is applied. These THREE errors, serendipitously, cancel each other and the answer is a reasonable estimation of Market Value. These errors can be eliminated in a DCF model (see Figure 6 below). But, when the market moves from a stable growth economy or where the subject property has an unusual reversionary pattern, the implicit model generally fails to adapt and an under-valuation results (see French, 2011).

⁴ A reversionary property is technically one where the rent passing is DIFFERENT to the MR. This could be higher (over-rented) or lower (under-rented) than MR. However, valuation convention suggests that we only refer to under-rented properties as reversionary. The former are seen as a separate type of valuation and are simply referred to as "over-rented properties". These will not be discussed in this paper.

2) Hardcore/Layer Method

The hardcore/layer implicit model, although a historic acronym (see French, 2013), is often preferred by valuation firms through common usage. In fairness, when using an equivalent yield throughout, it produces the exact same answer as the term and reversion model. It takes the same income over time and divides it horizontally rather than vertically. But as each £ is valued at the same discount rate for the same period it will produce a matching answer to that of the model above. This is shown in Figure 3.

Interestingly, the UK property valuation profession is the only valuation group (in the world) that divides the cash flow horizontally. All other professions value cash flows in vertical tranches.

Figure 3 - Implicit Layer/Hardcore			
Layer			
Layer Income		£800,000	
YP perp @	8.00%	12.50	£10,000,000
Top Slice			
Top Slice Income		£200,000	
YP perp @	8.00%	12.50	
PV 2 years @	8.00%	0.86	£2,143,347
Capital Value before costs			£12,143,347
less costs @	5.8%		£11,477,644
Market Value (MV), say			£11,480,000

To summarise, the consensus of the literature reviewed suggests that implicit models may not be best placed to capture changes in UK lease terms. The argument being that complex cash flows need explicit models to allow for the potential plethora of changes in the cash flow over time.

Explicit Models of Valuation

The Discounted Cash Flow (DCF) model allows for valuation to be undertaken in an explicit manner. It allows for potential future rent growth in rentals in the cash flow and can also take into consideration factors such as rent-free periods or void periods. The DCF values the property's interest by using the investors target rate of return as the discount rate. At the end of the investment period the investment can then be valued using an exit yield which is a projection of the likely ARY at the point of sale. The entire cash flow is then discounted back to present value at the target rate.

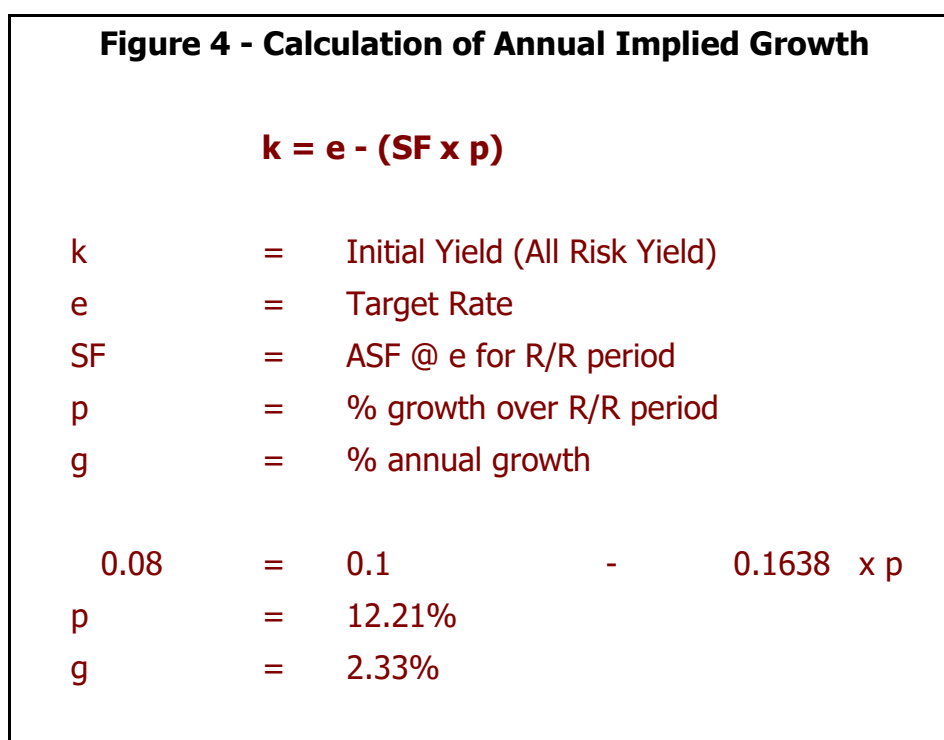
The main argument of the explicit models such as the DCF is that it shows the investor in an explicit manner the valuation and it allows for the rental growth rate to be included in the calculation. Millington (1994, p.162-3) summarises these viewpoints on the DCF in the following statement:

What has happened in recent years is that more sophisticated and more complex discounted cash flow calculations have been done, and that more variables and different layouts have been utilised for valuations. The two [explicit and implicit methods] are very much related to each other in that the building into a valuation of more variables entails more calculations, and a new format to take account of the more complex nature of the valuation is a logical development.

Scarrett (2008) believes that a distinct advantage of the DCF over implicit methods is its ability to quantify the anticipated rate of rental growth, ensuring that the valuer thinks more critically about the qualities of the investment. The DCF approach is beneficial to the investors as it explicitly shows the overall yield that an investment should be expected to make. It is this explicit capability of dealing with growth and values on a basis of market yield that Scarrett (Ibid, p. 83) describes as the “main distinguishing element between a (explicit) DCF and the implicit (capitalisation) model.” As the lease structure becomes more complex, this complexity should be reflected in the model of valuation. This suggests that explicit models lend themselves better to assets with multiple cash flows with non-aligned reviews and lease ends such as shopping centres, student housing, Private Rented Sector (PRS) portfolios etc.

Explicit Valuation – Discounted Cash Flow - Rack Rented Property

Discounted Cash Flow is simply a different model of The Investment Method, which itself is sub-set of the Income Approach. It mirrors the implicit model but, as the name suggests the explicit DCF model reveals the growth expectation in the market and applies this to the rental cash flow. The rents are then discounted at a target rate that only reflects the risk free rate plus risk. In this case, the target rate is 10%. To determine the growth rate implied in the ARY (and made explicit in the DCF), the valuer uses a growth formula that focuses on the relationship between the ARY and Target Rate. In this case, it is 2.33% per annum and this is shown in Figure 4.



Thus an initial rent of £1m will be expected to grow to £1.12m⁵ at the review in 5 years time. This is not a new assumption; it is the current market expectation for growth decanted out of the relationship between the initial yield to be accepted by the investor (the ARY) and their required rate of return (the target rate).

For rack-rented freeholds, the DCF valuation produces the same figure for Market Value as the implicit model (in Figure 1). This is shown in Figure 5.

⁵ £1,000,000 x (1.0233)⁵ = £1,122,102

Figure 5 - Full Discounted Cash Flow - Explicit					
Year	RR	Rent	YP @ 10.00%	PV @ 10.00%	PV£
1	5	£1,000,000	3.79	1	£3,790,787
6	10	£1,122,102*	3.79	0.6209	£2,641,182
11	perp	£1,259,113	12.50**	0.3855	£6,068,032
Capital Value before costs			£12,500,000	less costs at	5.80%
			£11,814,745		
Market Value (MV), say			£11,815,000		
* growth at 2.33% per annum - compounded over 5 years =			12.21%	** YP perp at 8%	

In this simple example, which mirrors the implicit model but makes the cash flow explicit, the advantages of the DCF are limited as a valuation model only looks at the target rate and growth rates explicitly and, even then, only in 5 year periods. It is possible to extend the model to accommodate more variance by either showing the cash flows annually or quarterly and by introducing voids, costs and other elements that better reflect the complexity of the cash flow. This is outwith the ambit of this paper but for a greater discussion on layout and timings see French (2012). The main point is that the explicit valuation model and the implicit valuation model will all create similar answers when the market is relatively stable (French 2013, p.225).

So the DCF provides an explicit valuation that can take into account the complexities involved in property investment that are not shown in the implicit methods. That said, all valuation models are trying to determine Market Value (the price in the market) and, if the only requirement is to determine the MV, then both models do the same. The difference is that, in certain cases, the two models can produce different answers primarily because the implicit model fails to capture all the complexities of market pricing in the ARY. This includes the expectation of rental growth, void periods caused by tenants leaving, rent-free periods, etc. Although the ARY in the implicit valuations accounts for these risks, they are not visible and the implicit manner, in which they are valued, can mean that certain elements of pricing are missed.

Explicit Valuation – Discounted Cash Flow - Reversionary Property

To a certain extent, this can be illustrated with the reversionary valuation shown in Figures 2 and 3 above. As noted, both valuation models produce a good estimate of Market Value in a stable market with a reversion less than the normal rent review period for the market, but it does this in a non-rational manner. The errors noted can be eliminated with an explicit model. In this case, the layout of the DCF mimics that of the implicit Term and Reversion (Figure 2) but uses explicit growth on the reversion and the target rate on the term and the deferment of the reversion. This is known as the short-cut DCF. This is shown in Figure 6

Figure 6 - Explicit Short-Cut DCF			
Term			
Rent Passing		£800,000	
YP 2 years @	10.00%	1.74	£1,388,430
Reversion			
Market Rent		£1,047,160*	
YP perp @	8.00%	12.50	
PV 2 years @	10.00%	0.83	£10,817,766
Capital Value before costs			£12,206,196
less costs @	5.8%		£11,537,047
Market Value (MV), say			£11,540,000
*growth at 2.33% per annum - compounded over 2 years = 4.71%			

This model produces, in this case, a marginally higher figure for the MV but has the advantage of adapting to changes in the market so it can value accurately when the market is less stable. As the name suggests, the short-cut DCF is a hybrid with the implied model as it reverts to a growth-implicit exit yield (the ARY at reversion) after the term. It would be possible to layout the valuation in the same format as in Figure 5 too and include further reversions (it will produce the same answer) but the short-cut model has the advantage of appealing to a familiar layout used by most valuers.

The Link between Implicit and Explicit Models

As implicit models are derived from market comparisons, then the valuer needs to reflect the same information in the explicit model. Explicit models still derive knowledge from the ARY. Furthermore, the exit yield chosen when performing a DCF is based on the ARY.

All valuation models are simply trying to reflect the market and the differences in technique may adapt to market complexities to a lesser and greater extent (French, 2013). There are cases where the implicit models are a better fit and, similarly, there will be situations when the explicit models should be chosen. This may be determined by market conditions or by the type of property being valued.

The UK leasing structure, although similar in terms of lease length, is different from other nations in terms of type of lease. Since the USA does not have FRI style leases, their valuations must be made explicitly to account for specific costs and tax breaks. Therefore, it makes sense that the USA would adopt explicit models. Likewise, where cash flows are complex, such as the valuation of a shopping centre, this requires an explicit model.

Depending on the valuation method used, the Market Approach will almost always be used. The difference, according to French (Ibid) is that the market approach will use direct comparison whereas all the other approaches will use indirect comparison. Therefore, when using the Income Approach to value, it doesn't matter what model is utilised, as long as the elements of comparison are included in that model. To determine Market Value, you need to relate to the market by comparison.

On this basis, implicit valuations lend themselves to valuation. When determining worth, the real concerns of an implicit model become evident. However, despite lacking the explicit nature that DCF models possess, implicit models still play a simple role in those models with the use of the exit yield and the determination of the market growth expectation. In other words, implicit and explicit models coexist together.

In terms of technique, implicit and explicit models are just as important as each other and the valuer has to use the technique which is right for the valuation. For example, an investment company analysing their own accounts is likely to use explicit models to determine worth. However, if that same company hires an external valuation team to place value on one of their assets, then it will probably use implicit models.

Comparison

As noted above, all valuations rely upon comparison. With the Market Approach, this is direct capital comparison. For the Income Approach, discussed here, the comparables are made by yields and rents. As noted above, Baum and Crosby (1995) commented that if plenty of comparables with similar lease structures exist, then implicit models produce accurate valuations.

Thus, the suggestion that implicit valuations are not appropriate as a valuation model is erroneous. The question of accuracy will depend upon the comparability of the comparables. The more that the comparables mirror the subject property in terms of location, specification, lease structure and timing of the transaction, the more they will contribute to an accurate valuation. Just because all valuations rely upon historic price information (comparables) it doesn't mean that the valuations are backwards looking.

All market comparables (or rents or yields or capital value) already capture future expectations. Property prices reflect a market expectation of how that property will perform over time. Thus market comparables reflect market expectations. Using historic information (there can be no other type) is not the same as "looking at the past".

Implicit and explicit models simply capture this information.

Conclusion

The goal of this paper is to comment upon the on-going debate about the preferred use of implicit models of valuation versus their explicit counterparts. The last few decades have seen changing complexities in UK leasing structures, and there is a suggestion that the implicit models are incapable of dealing with these complexities. This is not the case for all properties. Although, the explicit models prove to be more useful in certain situations, the implicit models are also proved just as useful. The appropriate model needs to be used as appropriate to the property type. If the valuation is one looking at a single asset with one tenant, then an implied rental capitalisation model is perfectly appropriate. Conversely, the valuation of an asset with multiple cash flows and numerous tenants (such as a shopping centre) lends itself to an explicit DCF model. Those commentators who argue that the use

of implicit modelling is archaic are missing the point. Just because something is simple doesn't mean that it is wrong. Sometimes the best pricing models are the simplest. In the stock market, the capitalisation model is constantly used to determine value (albeit real time price information is always available) with the dividend and price earnings ratio replacing the rent and YP of the property calculation. No one questions that use. To suggest that implicit models should not be used at all will be "throwing the baby out with the bathwater".

Rather than seeing implicit and explicit models as "rivals", they should be seen as two sides of the same coin. Both have advantages and disadvantages. The role of the valuer in practice is to choose the correct model for the valuation task in hand.

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