



# Valuation of investment properties

- a frame of reference for the yield



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# 1. Introduction

## 1.1. Background and objective

In the late summer of 2011, the Danish Property Federation and Danish Association of Chartered Estate Agents (the publishers) carried out an analysis among selected professionals in respect of understanding market data on Danish commercial real estate. Among other things, the analysis indicated material uncertainty about whether market data on yields are based on asking prices or actual market prices, whether risks must be included in the yield or in the net operating income/cash flows, etc.

Based on the analysis, the publishers have found it relevant to prepare a common frame of reference of the concept „yield”, which property investors, commercial estate agents, real estate appraisers, credit institutions and other consultants operating in the commercial property industry may use when they publish market information, including in connection with transactions, publication of market data, disclosures in the annual report, etc.

In the opinion of the publishers, the establishment of a common conceptual framework will increase transparency in the Danish real estate market as it will create a basis for comparing and assessing the performance of and return on properties. Moreover, this frame of reference is in compliance with international standards on real estate appraisals and is thus linked to international valuation methods.

The purpose of this frame of reference is to operationalise the concept of yield and to prepare a common understanding that may be used by national as well as international market professionals. It has therefore been of decisive importance that the frame of reference is in accordance with generally accepted international terms, which are further explained in appendix 1.

## 1.2. Supported by leading market professionals

As this frame of reference has been prepared in cooperation with a number of leading Danish market professionals, it has been ensured that it is based on generally accepted market conditions.

The following market professionals have participated in the preparation of this frame of reference:

Market professionals	Participants	Market professionals	Participants
Aareal Bank	Per Andersen	DTZ	Kim McMillan
Aberdeen Asset Management	Camilla Wermelin/ Bjarke Bendix Cloos	Danish Property Federation	Morten Marott Larsen
Axel Pitzner Fonden	Morten Jensen	IPD	Torben Damgaard
BRFkredit	Carsten Schiødte/ Thomas Toft Brock-Jacobsen	Nybolig	Stig Plon Kjeldsen
CBRE	Per Weinreich/ Christopher Bailey	Nykredit	Jacob Bagge
Colliers International Danmark	Brian Toft	RED - Property Advisers	Nicholas Thurø
DADES – DATEA	Kenneth Bisgaard	RICS (Royal Institution of Chartered Surveyors)	Michael Sehested
Danish Association of Chartered Estate Agents	Michael Andersen	Sadolin & Albæk	Kasper Wehner



## 2. General understanding of the term yield

The frame of reference has been prepared on the basis of the general assumption that a property should have the same market value irrespective of valuation method (discounted cash flow model and capitalisation model).

The yield is the rate of return that adequately compensates the investor for the risks taken. As risk rises, the required compensation for the level of risk should also raise, reflected in a rise in the yield. The yield (the target rate of return) may be derived by reference to the return on an alternative form of perceived low-risk or riskless asset (frequently the frame of reference is the gross redemption yield on government gilts or cash), plus appropriate additions for risk.

The desired rate of return (also referred to as the yield or target yield) is conventionally constructed from a risk-free rate and market risk premium for real estate. Investors may also choose to add specific risk premiums. While this may seem to be a relatively straightforward process, actual determining the risk premium is more complex. Although some areas can be estimated quantitatively.

In October 2010 the Danish Property Federation published the publication „Valuation of investment properties – recommendations for the DCF model”. This publication used some general definitions which are restated in box 1.1, and which also apply to this publication.

### Box 1.1: General definition of terms

**The yield** is the benchmark of the property for the return determined under the capitalisation model before adjustments. The yield used in the exit period under the DCF model must be interpreted correspondingly as the yield to be used under the capitalisation model. The yield equals the international term “equivalent yield”.

**The discount rate** is the nominal yield on the property, i.e. the benchmark for the yield, including inflation. In principle, the yield under the capitalisation model before adjustments is equal to the discount rate less expected inflation. The discount rate is equal to the international term “equated yield”.

**The discount factor** reflects the time value of money given a specific discount rate. The discount factor is thus used to calculate the present value of future cash flows.

The international term “equivalent yield” is explained further in appendix 1 (section 7.4). This yield reflects current rents, cost, and market rental values expected from the investment. This yield is defined in real terms excluding inflation. The discount rate and the international term “equated yield” are explained further in appendix 1 (section 7.5). The discount rate is defined in nominal terms and equals equivalent yield plus inflation.

In this publication, the yield concept will be explained and determined further. It is important to emphasise that care should be taken to avoid double counting of risks, by reflecting them both in the cash flows and in the discount rate. The treatment of risk is further explained in section 3.







### **3. Treatment of risks**

Investors' treatment of risks will almost invariably differ because each of them has a different view relating to the elements that make up the investment, for example income requirements, market expectations, and attitudes towards both general market risks and property specific risks. As such, it is not possible to make a complete and general list of all risks covering all elements at all times. However, it is possible to make a general list of risk considerations that would affect the investor's motivation to buy and sell and thereby the investment yield required.

In the following section different types of risks are described. As explained in section 2, it is imperative that a common understanding is reached regarding how to avoid double counting of risks by reflecting them both in the cash flows and in the yield. For example, if the cash flow assumes the exercise of all lease breaks and consequent vacancy, the discount rate can be lower since the risk (the downside) has already been reflected in the cash flow. The aim of the following section is to explain which risk factors are impacting the yield.

#### **3.1. Risk factors impacting the yield**

The intention is that this framework should be perceived as an overview of several factors which potentially could affect the yield. Different risk factors are more or less significant over time. At the investment property market a number of different yields are often disclosed even on the same property. However, it is not disclosed how the seller and the buyer combine their opinion of different risk factors, and whether the risk factors have affected the yield or the cash flow. The yield of a market transaction could be interpreted as the price agreed upon, but the process of negotiation is nearly always undisclosed.

The framework presented in box 3.1 is a transcript from RICS guidance note „Discounted cash flow for commercial properties”. Discussions and explanations with reference to box 3.1 are the authors' perceptions of how the risk factors should be explained and understood with reference to the Danish investment property market. The significance of the risk factors varies over time and differs from property to property and market to market. However, some risk factors are universal.

Box 3.1 outlines which risk factors must be treated in respect of the yield.

### Box 3.1: Risk factors to be treated in the yield

#### 1. Risk free rate of investment

#### 2. Market risk

Illiquidity upon sale (e.g. lot size, transaction times, availability of finance)  
Failure to meet market rental expectations (forecast rental growth)  
Failure to meet market yield expectations (forecast yield shift)  
Risk of locational, economic, physical and functional depreciation through structural change  
Risks associated with legislative change (e.g. planning/privity of contract, changes in fiscal policy)

#### 3. Specific risks

Tenant default on rental payment (covenant risk)  
Risk of failure to re-let (void risks)  
Costs of ownership and management  
Differing lease structures (e.g. rent review structure, lease breaks)

Source: RICS guidance note: „Discounted cash flow for commercial properties”

An indicator of a risk factor can change over time. For instance, the government gilt is often used as an indicator of the risk free rate of an investment. But if a country is threatened by bankruptcy, the risk free rate of investment should not be a government gilt from this country since it is not risk free at this point of time. Accordingly, a country risk premium should affect the yield.

Valuation of investment properties is always carried out without deduction of finance costs in the free cash flow. Consequently the return of the investment should cover finance costs as well. However, the state of the financial markets and the economic situation in general influence the yield as also described further in section 3.1.2.

Adverse risk factors usually push the yield requirements up (higher risk equals higher yield), however, under certain market conditions, reduced risk factors and anticipated strong growth can also reduce the yield. In rare circumstances the yield can be lower than the government gilts producing a ‘reverse yield gap’. The risk free rate indicated by government gilts is therefore not necessarily the fixed lower limit of the yield an investor will accept.

#### 3.1.1. Risk free rate of investment

The risk free return may be taken to be the gross redemption yield on medium-dated government gilt or the most liquid bond. Preferably, the government gilt of the same duration as the assumed holding period of the investment.

Equally, geared investors or property companies frequently have reference to their own debt costs or weighted average costs of capital (WACC) as the core metric against which assets are assessed and their own target rates of return set.

### **3.1.2. Market risk**

The second group of risk factors is market risks, which comprises risks of structural change or market failure and is what may affect the market as a whole, particular subsectors or groups of property.

#### **Illiquidity upon sale (e.g, lot size, transaction times, availability of finance)**

Direct real estate is an illiquid asset, compared to for example equities and bonds. Equities and bonds are traded hourly at the stock exchange opposite investment properties, where a transaction often takes weeks or months as the buyer often undertakes a due diligence process. Occasionally, the right buyer is not present in the market which causes an extended transaction period.

If the buyer is dependent on external financing, it often takes time to get credit approval from the mortgage credit institutes which also causes an extended transaction period. Furthermore, the supply of real estate is often carried out in larger lot sizes as opposed to investments in equities and bonds which are carried out in tailored lot sizes which are more flexible for investors.

The risk factor will typically be high in an illiquid market with extended transaction times and a market with lack of financing.

#### **Failure to meet market rental expectations (forecast rental growth)**

The uncertainty related to future estimates of rental income should be treated as a risk factor. The future market rent is depending on supply and demand which is varying over time and is influenced by a number of different factors and accordingly difficult to forecast. The risk factor will be higher in a volatile and unsteady rental market and lower in a steadier and more predictable rental market.

#### **Failure to meet market yield expectations (forecast yield shift)**

The uncertainty related to forecasting the investment market will affect the total risk assessment. The risk of the yield depends upon the market professionals' skill to understand the investment market comprising predicting future yield movements, which among other things are dependent on the accessibility and reliability of market evidence. The risk related to forecasting the market will vary over time, since some property market states are more or less uncertain. The risk factor will be high in a volatile market with lack of market evidence and lower in a transparent and reliable investment market.

#### **Risk of locational, economic, physical and functional depreciation through structural change**

The market's perception of a given location can change over time and provide uncertainty and risk to a specific location. The structural impact on shopping is an example that affects both in-

town shopping and out-of-town retailing. The risk of internet shopping may take market shares from both in- and out-town retailing.

The overall economic conditions are a natural risk for real estate. Decreasing employment can imply decreasing office market rent and decreasing consumption can bring decreasing retail market rent. Also, the function of the building can be affected by market risk. Is there an increasing trend towards open-plan offices and is the building flexible enough to meet these changes? Furthermore, the environmental requirements change over time.

### **Risks associated with legislative change (e.g. planning/privity of contract, changes in fiscal policy)**

The political risk is substantial in some sectors and minor in others. The residential sector is heavily regulated in a number of countries. But increasing risks of tighter regulation do affect the investors' willingness to buy residential. Changes in planning legislation affect both the actual location and can also affect the neighbouring locations.

#### **3.1.3. Specific risk**

The third group which is non-market or 'unsystematic' risk factors is broadly speaking; risks associated with the individual property and are divided into the following risk factors which should be factored into the yield (the list is not exhaustive):

- Tenant default on rental payment (covenant risk)
- Risk of failure to re-let (void risks)
- Costs of ownership and management
- Differing lease structures (e.g. rent review structure, lease breaks)

Tenant default on rental payment (covenant risk) comprises the risk related to the tenant's ability to provide future rental payments. Tenants within the public sector are usually perceived as being a secure tenant with a low default risk.

The risk of failure to re-let (void risks) comprises the risk for future vacancy. Actual or expected vacancy is included in the cash flow. The risk is often closely related to the property's location and the property's attractiveness for prospective tenants comprising flexibility and the ability to meet future requirements from tenants.

Costs of ownership and management are also known as cost of administration and property management and are directly related to the property. Uncertainty related to assessing the amount of

ownership and management costs affects the yield, however, in Denmark the uncertainty is normally quite low and will not usually affect the yield significantly. Unrecoverable administration costs as e.g. fee to the property administrator should be incorporated in the cash flow.

Risk related to differing lease structures (e.g. rent review structure, lease breaks) comprise the uncertainty related to existing long term rental agreements. However, reassessment of rental level at the end of a lease period or matters concerning lease expiry dates, break clauses, rent review dates, rent review terms should be incorporated into the cash flow.



## 4. The capitalisation model

The capitalisation model is defined in accordance with Executive Order No. 1265 of the Danish Financial Supervisory Authority, Enclosure 8 of 26 October 2007 on Financial Reports of Credit Institutions, Investment Companies, etc.

The capitalisation model determines the value based on the expected net operating income of the property for a stabilised year (phase 1) and a yield which reflects a risk free rate of investment, a market risk and non-market or unsystematic risk factors which are risk factors associated with the individual asset (phase 2). In addition, adjustments for special matters are made in the value determined (phase 3).

Box 4.1 illustrates a valuation prepared in accordance with the capitalisation model.

### Box 4.1: The capitalisation model

<b>Phase 1</b>	
Rental income (market rent)	120,000
Other rental income (market rent)	3.750
Operating costs	<u>-20,000</u>
Net operating income	<u>103,750</u>
<b>Phase 2</b>	
Yield	<u>5.00%</u>
Value of property before adjustments	<u>2,075,000</u>
<b>Phase 3</b>	
Adjustments:	
(1) Adjustment to actual rent	-70,000
(2) Deduction for vacancy	-100,000
(3) Return on deposits	70,000
(4) Maintenance backlog	<u>-200,000</u>
Property value	<u>1,775,000</u>

The yield derived from the capitalisation model should not be confused with an approximate yield (see box 4.2) or the net initial yield (see appendix 1), which traditionally is presented in valuation reports. The approximate yield in box 4.2 subsumes assumptions about future cash flow that are not explicitly presented in the cash flow, e.g. anticipated future rental value change, void periods, and capital expenditure. The essential lesson in box 4.2 is to exclude phase three adjustments from the yield.



#### Box 4.2: Illustration of difference compared to a approximate yield

Yield (equivalent yield)		Approximate yield	
<b>Phase 1</b>			
Rental income (market rent)	120,000	<del>Rental income (market rent)</del>	<del>120,000</del>
Other rental income (market rent)	3,750	<del>Other rental income (market rent)</del>	<del>3,750</del>
Operating costs	<u>-20,000</u>	<del>Operating costs</del>	<del><u>-20,000</u></del>
Net operating income	<u>103,750</u>	<del>Net operating income</del>	<del><u>103,750</u></del>
<b>Phase 2</b>			
Equivalent yield	<u>5.00%</u>	<del>Approximate yield</del>	<del><u>5.85%</u></del>
Value before adjustments	<u>2,075,000</u>	<del>Value of property</del>	<del><u>1,775,000</u></del>
<b>Phase 3</b>			
(1) Adjustment to actual rent	-70,000	<div>The difference between the equivalent yield of 5.0% and a approximate yield of 5.85% may be attributed to adjustments of potential and risks in phase 3. When determining the discount rate, the yield must be exclusive of potential and risks.</div>	
(2) Deduction for vacancy	-100,000		
(3) Return on deposits	70,000		
(4) Maintenance backlog	<u>-200,000</u>		
Property value	<u>1,775,000</u>		

## 5. The DCF model

The DCF model is further defined and described in the publication „Valuation of investment properties — recommendations for the DCF model”, to which we refer.

The essential difference between the capitalisation model as outlined in box 4.1 and the DCF model is that adjustments according to phase three in the capitalisation model are incorporated in the cash flows according to the DCF model. The link between the capitalisation model and the DCF model is outlined in box 5.1.

Due to the fact that all phase three adjustments are incorporated in the cash flow, the underlying equivalent yield will remain the same in the two models. As the DCF-model allocates the phase three adjustments to future periods (years) the adjustments according to the capitalisation model equals the net present value (NPV) of the expected future cash flow.

### Box 5.1: The DCF model

	Year 1	Year 2	Year 3	Year 4	Budget period		Year 7	Year 8	Year 9	Year 10	Exit period
					Year 5	Year 6					
Yield (equivalent yield) %	5,00										
Inflation %	2,00										
Equated Yield %	7,00	0,93	0,87	0,82	0,76	0,71	0,67	0,62	0,58	0,54	0,51
Return on deposits %	3,14										
Number of months deposits	12,00										
<b>Income</b>											
Rental income (market rent)	120.000	122.400	124.848	127.345	129.892	132.490	135.139	137.842	140.599	143.411	146.279
Other rental income (market rent)	3.750	3.825	3.902	3.980	4.059	4.140	4.223	4.308	4.394	4.482	4.571
(1) Adjustment to actual rent (NPV 70.000)	-38.346	-39.113									
(2) Deduction for vacancy (NPV 100.000)			-122.504								
(3) Return on deposits (NPV 70.000)	2.563	2.614	74	3.997	4.077	4.159	4.242	4.327	4.413	4.502	4.592
	87.967	89.727	6.319	135.322	138.028	140.789	143.605	146.477	149.406	152.394	155.442
<b>Operating costs and other expenses</b>											
Operating costs	-20.000	-20.400	-20.808	-21.224	-21.649	-22.082	-22.523	-22.974	-23.433	-23.902	-24.380
	-20.000	-20.400	-20.808	-21.224	-21.649	-22.082	-22.523	-22.974	-23.433	-23.902	-24.380
<b>Investments etc.</b>											
(4) Maintenance backlog (NPV 200.000)	-214.000										
	-214.000	0	0	0	0	0	0	0	0	0	0
<b>Net operating income (NOI)</b>	<b>-146.033</b>	<b>69.327</b>	<b>-14.489</b>	<b>114.098</b>	<b>116.380</b>	<b>118.707</b>	<b>121.081</b>	<b>123.503</b>	<b>125.973</b>	<b>128.493</b>	<b>131.062</b>
Net present value (NPV), yearly	-136.479	60.552	-11.828	87.045	82.977	79.100	75.403	71.880	68.521	65.319	
Net rental income	87.967	89.727	6.319	135.322	138.028	140.789	143.605	146.477	149.406	152.394	155.442
Expenses and operating costs	-20.000	-20.400	-20.808	-21.224	-21.649	-22.082	-22.523	-22.974	-23.433	-23.902	-24.380
<b>Net operating rental income (NOR)</b>	<b>67.967</b>	<b>69.327</b>	<b>-14.489</b>	<b>114.098</b>	<b>116.380</b>	<b>118.707</b>	<b>121.081</b>	<b>123.503</b>	<b>125.973</b>	<b>128.493</b>	<b>131.062</b>
NPV, budget period	442.490										
NPV, exit period	1.332.510										
<b>Property value</b>	<b>1.775.000</b>										
Property value	1.775.000										
Maintenance backlog (NPV 200.000)	200.000										
<b>Gross Capital Value (GCV)</b>	<b>1.975.000</b>										
Net initial yield	3,44%										
Running yields	3,44%	3,51%	-0,73%	5,78%	5,89%	6,01%	6,13%	6,25%	6,38%	6,51%	6,64%
Reversionary yield	5,44%										
Equivalent yield	5,00%										
Equated yield	7,00%										
Exit yield	5,00%										

The above DCF model specifies a number of different yields. We refer to appendix 1 for further definition and explanations of the applied yields.



## 6. References

RICS (2011). RICS Valuation Standards, May 2011, 7th edition, (Red Book).

RICS guidance note; Discounted cash flow for commercial property investments, RICS practice standards UK.

Danish Property Federation (2010). Valuation of investment properties – recommendations for the DCF model. Available in Danish only.

Danish Financial Supervisory Authority (2007). Executive Order No. 1265, enclosure 8, 26th October 2007 on Financial Reports of Credit Institutions, Investment Companies, etc.

Danish Property Federation (2006). Valuation of real estate – an introduction to the DCF model. Available in Danish only.

International Financial Reporting Standards (IFRS), IAS 40 Property Investments.

Royal Institute of Chartered Surveyors, [www.rics.org](http://www.rics.org)

International Valuation Standards Council, [www.ivsc.org](http://www.ivsc.org)

Global Investment Performance Standards, [www.gipsstandards.org](http://www.gipsstandards.org)

## 7. Appendix 1: International terms

The property yield, referred to often as the capitalisation rate (cap rate), is a measure for capitalisation of income in the context of investment valuation as the majority of commercial property is held as investments.

The yield is therefore identified as the measure of market expectation from employing the investment or income method, which is an estimation of the present worth of rights to future benefits from property ownership. Future benefits more specifically relate to future income (rent) and future reversionary capital value.

The property yield at an international level can, depending on the subject of measurement to be adopted, be defined into further sub-terms:

### 7.1. Net Initial yield

The initial yield is defined as the initial net operating income (NR), which is rent and other income less any ground rent and after deduction of expenses and operating costs, at the date of transaction or valuation expressed as a percentage of the purchase price or gross capital value, GCV. In North America the term typically used is 'going-in capitalization rate' whilst in Commonwealth areas the term is 'all risks yield'.

The GCV represents the total that a purchaser would have to pay, including property transfer taxes and other costs such as legal fees and agency (depending on local market practice). It is also often practice to allow for investment capex costs such as essential works or repairs (beyond that covered by annual maintenance costs) as a direct cost in the GCV. Deducting purchaser costs and investment capex from the GCV provides a net value which represents the price that a vendor would receive. In most instances it is typically the net value, or net market value, that is reported in accordance with the definition of market value ("The estimated amount for which a property should exchange....."). The net initial yield, however, always reflects the GCV, or return required from the total capital outlay of the investment.

The yield derived is based on the comparable assumption of a property in a stabilised position, fully let and rack-rented to market terms and compares to the yield expressed in phase 2 of the capitalisation model in section 4, box 4.1: The capitalisation model. In this particular example no allowances have been made for purchaser costs, the property is not stabilised and requires a phase 3 adjustment for special matters. Incorporation of any adjustments in year one will result in a different initial net income, or net operating income, which will cause the initial yield to vary from the yield.

$NR_{t+1}/GCV$  where  $NR_{t+1}$  is the initial net operating income at the end of period  $t$  and  $GCV$  is the gross capital value at the beginning of period  $t$ .  $GCV$  is defined at the beginning of period

t. Using the same basis from section 4, Box 4.1, but converting the adjustments into first year running income and costs, the following example demonstrates the difference in variation to the initial yield from a stabilised property to an un-stabilised property that requires a phase 3 adjustment. In this particular instance the property is under-rented and an additional vacancy occurs in year 3 equivalent to 95.1% of the market rent. It is assumed that the rent reverts to market rent at the end of year 2 and the void period for vacancy occurs in year 3 only, hence full stabilisation of the property is achieved in year 4. As well as additional income from special furnishing and interest payments on cash deposits, there is also an investment capex required for maintenance backlog.

### Stabilised property

Rental income (market rent)	123,750
Operating costs	<u>-20,000</u>
Net operating income (prior to adjustments)	<u>103,750</u>

Value of property (prior to adjustments)      2,075,000

Yield and net initial yield                              5.00%              (103,750 / 2,075,000)

Applying the phase 3 adjustments from section 4, box 4.1, for an un-stabilised property, but excluding maintenance backlog (investment capex) of 200,000, the GCV is thus 1,975,000. Deduction of the investment capex provides a net value of 1,775,000.

### Year 1 income (figures are in year 1 prices)

Net operating income (prior to adjustments)      103,750

### Adjustments:

Loss of income from under-rent	-38,346	
Return on deposits	<u>2,563</u>	
Initial net operating income	<u>67,967</u>	(NR)

$$\text{Net initial yield} = \text{NR/GCV} (67,967 / 1,975,000) = 3.44\%$$

By comparing both the equivalent yield (see also section 7.4) and the initial yield it can immediately be seen that the property is in an un-stabilised situation. As the initial yield is lower it can be furthermore ascertained without any other information that the property is under-rented, vacant or subject to some other initial income loss.

## 7.2. Running yield

Where there are fluctuations in the income profile in later years before stabilisation of the property is achieved at market rent, an adjustment of the initial yield can be calculated to provide a running yield.

The running yield is defined as the net operating rental income (NOR), which is rent and other income less any ground rent and after deduction of expenses and operating costs, at a given date  $t$  expressed as a percentage of the purchase price or gross capital value, GCV.

$$\text{NOR/GCV}$$

In the following example the fluctuation relates to the vacancy in year 3 equivalent to 95.1% of the market rent.

### Year 3 income (figures are in year 3 prices)

Rental income (market rent)	128,750	
Vacancy year 3	-122,504	(95.1%)
Adjustment to actual rent	0	(Market rent in year 3)
Return on deposits	74	
Operating costs	<u>-20,808</u>	
Net operating rental income (prior to adjustments)	<u>-14,489</u>	(NOR year 3)

$$\text{Running yield}_{t=3} = \text{NOR/GCV} (-14,489 / 1,975,000) = -0.73\%.$$



### 7.3. Reversionary yield

The reversionary yield is defined as the net market rental value (NMR), which is rent and other income less any ground rent and after deduction of expenses and operating costs, at the date of transaction or valuation expressed as a percentage of the purchase price or gross capital value, GCV.

This is used to express the difference in a property which is under- or over-rented and the variance from the initial yield to the reversionary yield reflects the extent of the security of income from the time taken to achieve market rent. A property in a stabilised position, fully let and rack-rented to market terms will have the same reversionary yield as the initial yield as there is in effect no reversion.

NMR/GCV

In the following example stabilisation of the property is achieved in year 4 where the property is fully let and rack-rented.

#### Year 4 income (figures are in year 1 prices)

Rental income (market rent)	123,750
Vacancy year 3	0 (fully let)
Operating costs	<u>-20,000</u>
Net operating income (prior to adjustments)	<u>103,750</u>

#### Adjustments

Loss of income from under-rent	0 (Market rent in year 3)
Return on deposits	<u>3,767</u> (on rental income year 4)
Net operating market rent income	<u>107,517</u> (NMR)

Reversionary yield = NMR/GCV (107,517 / 1,975,000) = 5.44%

In this case, the reversionary yield is higher than the initial yield of 3.44 % as outlined in the earlier example because the property, which was previously under-rented, is now regarded as stabilised at market rental levels.

## 7.4. Equivalent yield

The discount rate applied to all projected income and income flows, producing a present value equal to the capital outlay of the investment. It reflects current rents, costs and market rental values expected from the investment and is an IRR or weighted average yield expected where cash flow changes are allowed for implicitly. Growth in rental value over the period to reversions is therefore not included.

The equivalent yield is thus a weighted average between the initial and reversionary yield without allowing for growth, as opposed to an equated yield or discount rate which allows for growth before discounting back.

In the former examples an equivalent yield of 5.00% has been applied to all the income streams from phase 2 and phase 3, but excluding maintenance backlog (investment capex). The GCV is thus 1,975,000. The deduction of the investment capex of 200,000 provides a net value of 1,775,000.

The yields can be thus summarised:

Net Initial yield = $NR/GCV$ ( $67,967 / 1,975,000$ ) = 3.44%
Equivalent Yield = 5.00%
Reversionary yield = $NMR/GCV$ ( $107,517 / 1,975,000$ ) = 5.44%

## 7.5. Equated yield

The discount rate or internal rate of return which, when applied to the income expected over the life of the investment, produces a present value that is equal to the capital outlay. Expected future rental changes from rent reviews and lease renewals include for variations in the value of money and inflation. Growth in income therefore takes into account an assumed growth rate and cash flow changes are explicitly allowed.

In a discounted cash flow model to produce the same value as 1,775,000 an equated yield (discount rate) of 7.00% is required, which is the yield of 5.00% plus inflation at 2.00%.

## 7.6. Exit yield

The exit yield is the capitalisation rate applied to the net income at the end of the DCF model period to provide a capital value or exit value which an entity expects to obtain for an asset after this period.

In a discounted cash flow model to produce the same value as 1,775,000 an exit yield of 5.00% is required.

## **8. Appendix 2: Abbreviations**

**GCV** Gross capital value. Gross capital value is defined in the beginning of period  $t$ , which is the date of the transaction or the date of the valuation.

**NMR** Net market rental value.

**NOR** Net operating rental income.

**NR** Initial net operating income. Initial net operating income is defined at the end of year 1.