Valuation of real estate

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Background

The valuation of a property is achieved by using the discounted cash flow formula.

$$PV = \sum \frac{C_t}{(1+r_t)^t}$$

where
PV refers to present value
$\sum$ refers to the sum of the series
C refers to cash flow
r refers to required rate of return
t refers to time

Cash flow, C

Properties generate money from rental incomes. It also costs money to supply a standard that the tenants require. The income minus the cost is the cash flow.

Required rate of return, r

The required rate of return is the yield. It is the same as the opportunity cost to buy a similar property with the same risk. There is usually risk. If there is no risk, the opportunity cost is the same as the banks would lend money. The buyer's interest in buying a property is a way of measuring the risk. The more attractive the property is, the more the market is willing to pay for it. The higher the price, the lower the risk premium. Below, is listed some parameters of attractivity.

Size of city. Bigger cities where there is a higher demand for apartments, are generally safer to purchase in.

Location. Located on A-location is most attractive.

Lease structure. The longer the contract, the safer it is. In the case of termination of a lease contract, it might take time to find a new tenant.

Tenants' structure. Are they creditworthy? There is higher risk if the tenants are likely to have problems with there payments.

Market rent. What is the market rent compared with the rent today. There might be a risk that a new tenant will rent at a lower level.

Investments. Investment might be performed without being fully funded by the tenants. Older houses are more likely to have deferred maintenance. On the other hand investment can have potential. That is the case if the investment can be done at a good yield.

Present value, PV

The net operating income from year to year can be assumed. It usually grows continually for real estates. The formula for continual growth is below.

$$PV = \frac{C_1}{r - g}$$

where
PV refers to present value
C_1 refers to cash flow at a certain period
r refers to required rate of return
g refers to growing rate of cash flow

To achieve an adequate result it is important that the cash flow represents a correct result over the time. As stated in the equation, g is the inflation of cash flow. Therefore, r is the nominal rate of return. The formula can be simplified.

$$PV = \frac{C_1}{r}$$

The difference compared with the previous equation is that the rate of return now is real. The rate of return is talked about in the real estate world in real terms. The value of the property is the cash flow, divided by the yield.

As an example we have a property that generates a cash flow of 1 million Euro. The cash flow is expected to grow 2 percent per year. The nominal rate of return is 7 percent. The value of the property is 20 million Euros.

$$PV = \frac{1.000.000}{0{,}07 - 0{,}02} = \frac{1.000.000}{0{,}05} = 20.000.000$$

Example of valuation

How Akelius performs valuations in Sweden

The Swedish valuation model for Akelius is based on how the property is running today. The net operating income is divided by the yield and it is the value before adjustments. Adjustments are made to reach the valuation after adjustments.

Picture 1. Valuation in Sweden

FASTIGHETSFAKTA	1640 Assessorn 1-3	Malmö	91 lgh
Objektsnummer:	1640	Värde föregående kvartal:	80 210
Fastighetsbeteckning:	1640 Assessorn 1-3	Ingående värde räkenskapsåret:	80 206
Kommun/Ort:	Malmö	Momsgrad:	5,6
Klassificering:	Bostäder	Tomtareal:	
Postnummer	214 28	Bokfört värde:	58 171
Adress:	S Förstadsg 119, Värmlandsg	Skattemässigt restvärde:	52 793
Läge:	B	Antal fastigheter:	3
Ägare:	1156 Akelius Lgh Assessorn 1-3 AB	Ackumulerad anskaffningskostnad:	56 560
Ägandeform:	Aktiebolag	Förvärvsdatum:	1997-12-01
Byggnadår:	1939	Kvartalets investeringar:	57
Värdeår:	1939, 1965, 1987	Räkenskapsårets investeringar:	112
Taxeringsvärde:	5 026		

VÄRDERING

ANTAL

	Bostäder	P-platser	Kommersiellt
Totalt:	91	0	5
Vakant:	0	0	0
Vakansgrad:	0,0	0,0	0,0

KVM

	Bostäder	Kommersiellt	Totalt
Totalt:	5 593	345	5 938
Vakant:	0	0	0
Vakansgrad:	0,0	0,0	0,0
Genomsnittsstorlek:	61	69	

ANTAGANDEN

	Bostäder	P-platser	Övrigt	Kommersiellt	Totalt
Direktavkastningskrav %:	5,00	0,00	0,00	7,00	5,10
Normal vakans %:	0,0	0,0		0,0	0,0
Förväntad hyreshöjning nästa år %:	1,15				
Förväntat datum för hyreshöjning:	2010-07-01				

DRIFTNETTO

	Bostäder		P-platser	Övrigt	Kommersiellt		Totalt	
	tkr	kr/kvm	tkr	tkr	tkr	kr/kvm	tkr	kr/kvm
Bruttohyra:	6 146	1 099	0	0	419	1 216	6 565	1 106
Vakanshyra:	*0*	*0*	*0*		*0*	*0*	*0*	*0*
Vakansgrad:	*0,0*		*0,0*		*0,0*		*0,0*	
Nettohyra:	**6 146**	**1 099**	**0**	**0**	**419**	**1 216**	**6 565**	**1 106**
Vatten (budget):	-160	-29			-10	-29	-170	-29
Värme (budget):	-857	-153			-53	-153	-910	-153
El (budget):	-138	-25			-9	-25	-147	-25
Renhållning (budget):	-125	-22			-8	-22	-133	-22
Driftkostnader (schablon):	-531	-95			-21	-60	-552	-93
Underhållskostnader (schablon):	-475	-85			-26	-75	-501	-84
Fastighetsskatt (budget):	-130	-23			-8	-23	-138	-23
Tomträttsavgäld (budget):	0	0			0	0	0	0
Administration (schablon):	-140	-25			-9	-25	-148	-25
Totala Kostnader:	**-2 557**	**-457**			**-142**	**-412**	**-2 700**	**-455**
Driftnetto:	**3 588**	**642**	**0**	**0**	**277**	**803**	**3 865**	**651**
Värde innan justeringar:	**71 763**	**12 832**	**0**	**0**	**3 960**	**11 477**	**75 723**	**12 753**
Justeringar								
Marknadshyra/ hyreshöjning:	1 059	189	0	0	0	0	1 059	178
Normaliserad vakans:	0	0	0		0	0	0	0
Taxebundna kostnader:	0	0	0	0	0	0	0	0
Eftersatt underhåll:	0	0	0	0	0	0	0	0
Investeringsmöjligheter:	0	0	0	0	0	0	0	0
Subventioner, etc.:	0	0	0	0	0	0	0	0
Ombildningspotential:	3 813	682				0	3 813	642
Totala justeringar:	**4 872**	**871**	**0**	**0**	**0**	**0**	**4 872**	**820**
Värde efter justeringar:	**76 635**	**13 703**	**0**	**0**	**3 960**	**11 477**	**80 595**	**13 574**
Direktavkastning:	4,68		0,00	0,00	7,00		4,80	
Andel av värde:	95		0	0	5		100	
Andel av nettohyra:	94		0	0	6		100	

Kommentarer

Marknadshyra/ hyreshöjning:	MKB höjer bostadshyran med 1,15 procent från 1 juli.
Normaliserad vakans:	0
Taxebundna kostnader:	0
Eftersatt underhåll:	0
Investeringsmöjligheter:	0
Subventioner, etc.:	0
Bostadsrättspotential:	0
Övrigt:	Område med ombildningspotential.

Picture 1 shows one example of how the valuations looks for Akelius in Sweden

The area inside the light blue box shows general information about the property. It is information about the address, building year, booked value, valuation last quarter, valuation at the end of the last year, and about the owning company. Inside the purple box are facts about the number of contracts, the square meter and the yield. The green box shows the calculation as the property is running today. The yellow box displays the adjustments that represent a more correct value over the long term. Adjustments are made to market rent, normalised vacancy, normalised cost of maintenance, deferred maintenance, investment potential, subsidies short term, and condominium

potential. The text in the red box displays comments about the yellow box adjustments.