

The German acquisition valuation model

Hans-Peter Hesse, 2011-01-10

How to estimate what an income property is really worth

Finding the appropriate purchase price is essential in times of steady constant growth. Therefore, investors have to get an answer to the question “What is this property really worth?” It may be argued that value, like beauty, is in the eye of the beholder. This argument tends to be true in regard to single-family homes, where conventional wisdom has always held that a house is worth what someone is willing to pay for it. Income-producing property, however, is different. Value is determined by numbers. The owner of Chelsea FC, Roman Abramovich, may admire the perfect technique of his top scorer Didier Drogba, but he is paying for his scoring average. Therefore, before investing in a property, we need to take a decent look at all the cash flows.

The Need for Real Estate Appraisal

The definition of Real estate appraisal is the practice of developing an opinion of the value of real property, usually its market value. The need for appraisals arises from the particularity of property as asset class: no two properties are identical, and all properties differ from each other in their location – which is probably the most important key driver of property value. The absence of a market based pricing mechanism for properties (there is no market place for trading properties as there is for daily goods or corporate stocks) determines the need for valuation of real estate.

Types of Value

There are different types and definitions of value, of which the Market Value (or Fair Value) is the most common and relevant one.

Market Value is the estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arm’s-length transaction after

proper marketing wherein the parties had each acted knowledgeably, prudently, and without compulsion.¹

Other types of value such as value-in-use, insurable value or liquidation value may help for specific questions but do not reflect the actual market state.

Fair Value is a concept used in finance and economics, defined as a rational and unbiased estimate of the potential market price. There are discussions about differences between Fair Value and Market Value, for our needs they are on a par.

Price versus Value

The price of a property may or may not represent the property's market value. Special considerations may have been present, such as a special relationship between the parties, or else the transaction may be part of a larger set of transactions in which buyer and seller are engaged. Owners of a neighboring property may be willing to pay a premium over and above market value, because by combining the two properties they could obtain economies of scale. Therefore it is important to distinguish between market value and price.

Three Approaches to Value

There are three general groups of methodologies for determining value, which vary widely from one situation to the next.

The *cost approach* estimates the value by summing the land value and the depreciated value of any improvements. In practice, appraisers use replacement costs and then deduct a factor for functional disutility associated with the age of the subject property. This method tends to become less reliable for older properties, but is often the only reliable approach when dealing with special use properties.

The *sales comparison* approach examines the price of similar properties being sold. This approach is generally considered reliable if adequate comparable sales exist.

The *income capitalization approach* (often referred to simply as the "income approach") is used to value commercial and investment properties. Because it is intended to directly reflect or model the expectations and behaviours of typical market participants, this approach is generally considered the most applicable valuation technique for income-producing properties,

¹ RICS Red Book, PS 3.2

where sufficient market data exists to supply the necessary inputs and parameters for this approach.

In a commercial income-producing property this approach capitalizes an income stream into a value indication. This can be done using revenue multipliers or capitalization rates applied to the first-year Net Operating Income. The Net Operating Income (NOI) is gross potential income (GPI), less vacancy and collection loss (= Effective Gross Income) less operating expenses (but excluding debt service, income taxes, and/or depreciation charges applied by accountants).

Alternatively, multiple years of net operating income can be valued by a discounted cash flow analysis (DCF) model. The DCF model is widely used to value larger and more expensive income-producing properties, such as large office towers. This technique applies market-supported yields (or discount rates) to future cash flows (such as annual income figures and typically a lump reversion from the eventual sale of the property) to arrive at a present value indication.

Acquisition Valuation at Akelius Germany

Property acquisition valuation at Akelius Germany is based on the income approach using a 10-year cash-flow calculation. Several assumptions have to be added to the calculation model to analyze a possible income scenario over the next ten years to find an appropriate purchase price.

Key factors to be assumed are for example: income, costs, vacancy, new lease levels, fluctuation and investments or costs for visual and technical measures over the next years. The goal is to find a realistic development of the income and cost structure of the property over the next 10 years using all the information about the property itself by analyzing for example not only the technical due diligence but also the market environment by considering e.g. the development of a city or district.

The results of these calculations have to fulfill all of the following criteria.

- The **exit yield** should be **not lower than 4.0** percent
- **IRR** (on Total Investment Costs) should be **not lower than 6.75** percent
- **Total Return** (including Condominium Potential, 10 year perspective) should not be **lower than 9.0** percent

If **one** of these criteria is not being fulfilled, the property will not be purchased. **All** criteria have to be fulfilled.

Akelius Acquisition Valuation Sheet

The core sheet consists of the following parts:

- Part I: key facts
- Part II: assumptions
- Part III: Cash Flow Calculation
- Part VI: Results

Part I: Key facts

Region:	Süd
Stadt:	Köln
Objekt:	Augustastrasse 3
Datum:	17.09.2010

Inflation:	2%
Anteil Fremdfinanzierung:	60%
Zinsen Fremdfinanzierung:	5,0%
Tilgung:	1,0%

	INITIAL SITUATION			
	WE	GE	STPL	Insg.
Anzahl:	15	1	5	21
Leerstand:	2	0	0	2
Leerstand, %:	13,3%	0,0%	0,0%	9,5%
Ø-Größe, qm:	48	150		
Fläche:	723	150		873
Leerfläche:	160	0		160
Leerstand, %:	22,1%	0,0%		0
Anteil:	83%	17%		100%
Miete, SOLL (Tj):	66	4	4	74
Miete, SOLL /qgm:	7,63	2,00	74	
Miete, IST (Tj):	52	0	4	56
Miete, IST /qgm:	7,63	0,00	74	6,55
Leerstand, IST %:	22,1%	100,0%	0,0%	24,6%
Anteil, IST-Miete:	92,1%	0,0%	7,9%	100,0%

	MARKET SITUATION			
	WE	GE	STPL	Insg.
Anzahl:	15	1	5	21
Leerstand:	0	0	0	2
Leerstand, %:	1,0%	5,0%	5,0%	9,5%
Ø-Größe, qm:	48	150		
Fläche:	723	150		873
Leerfläche:	7	8		15
Leerstand, %:	1,0%	5,0%		1,7%
Anteil:	82,8%	17,2%		100,0%
Miete, SOLL (Tj):	81	4	5	89
Miete, SOLL /qgm:	9,30	2,16	80	
Miete, IST (Tj):	80	4	5	88
Miete, IST /qgm:	9,30	2,16	80	8,56
Leerstand, IST %:	1,0%	5,0%	5,0%	1,4%
Anteil, IST-Miete:	90,6%	4,2%	5,2%	100,0%

KAUFPREISFORDERUNG VERKÄUFER

Preis, Tj:	1.035
Preis /qgm:	1.186
IST-Faktor:	18,5
SOLL-Faktor:	13,9

TRANSAKTIONSSTREKEN

	ENTRY	EXIT
Maklerprovision (incl MwSt), % u.:	3,57%	37
Notar, Grundbuch und DD, % u.:	1,25%	13
Grunderwerbsteuer, % u.:	3,50%	36
Interne Akquisitionskosten, % u.:	0,10%	1
Transaktionskosten, (insg.):	8,42%	87

INITIAL TOTAL INVESTMENT

Tj:	1.122	
Exit Yield:	4,60%	not lower than 4,00 percent
Internal Rate of Return (on Total Investment Costs):	6,92%	not lower than 6,75 percent
Total Return (including Condominium Potential, 10 year Perspective):	9,24%	not lower than 9,00 percent

Part II: Assumptions

ANNAHMEN VE

Neuvermietungs- / Marktmiete:	9,30	nicht modernisierte VE, Anteil in %:	70%
Jetzige Durchschnittsmiete:	7,63	Herrichtungskosten für nicht mod. VE in €:	16.000
Potential aus Neuvermietung:	22%	Modernisierte VE, Anteil in %:	30%
Mietspiegel:	4,60	Herrichtungskosten für mod. VE in €:	1.000
Wachstumsrate Mietspiegel:	2,0%	Preise für Eigentumswohnungen, €/qm:	2.300
Exit Yield Forderung:	4,50%		

	IST	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10
Fläche VE, qm:	723	723	723	723	723	723	723	723	723	723	723
Fläche VE, leer, qm:	160										
Anzahl VE:	15	15	15	15	15	15	15	15	15	15	15
Anzahl VE, leer:	2										
Leerstand und Mietverluste, %:	22,1%	1,0%	1,0%	1,0%	1,0%	1,0%	1,0%	1,0%	1,0%	1,0%	1,0%
Fluktuation VE, %:		15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
Mieterhöhungspotential (auf Altmieten), %:		5%	1%	1%	1%	1%	1%	0%	0%	0%	0%
Potential zusätzlich zur Inflation (Neuvermietung), %:											
Kosten Umnutzung von GE zu VE, Tj:											

MIETEINNAHMEN VE

	IST	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	Growth
Anteil "Neumieter":	0%	8%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
Anteil "Altmieten":	100%	92%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
Neuvermietungsmiete:	3,30	3,30	3,49	3,68	3,87	4,07	4,27	4,47	4,68	4,89	5,10	
Altmiete:	7,63	7,63	8,15	8,40	8,67	8,90	9,12	9,32	9,55	9,74	9,94	
Durchschnittsmiete:	7,63	7,76	8,35	8,60	8,85	9,08	9,29	9,49	9,72	9,91	10,12	
Mietpotential:	218%	218%	16,4%	15,1%	13,8%	13,1%	12,6%	12,4%	11,9%	11,9%	11,8%	
Entwicklung Mietspiegel:	4,60	4,69	4,79	4,88	4,98	5,08	5,18	5,28	5,39	5,50		
SOLL-Miete VE, Tj:	66	67	72	75	77	79	81	82	84	86	88	3,0%
Wachstumsrate:		16%	7,7%	2,8%	3,0%	2,5%	2,4%	2,1%	2,4%	2,0%	2,0%	
Leerstand und Mietverluste, Tj:	-15	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
Leerstand und Mietverluste, %:	22,1%	1,0%	1,0%	1,0%	1,0%	1,0%	1,0%	1,0%	1,0%	1,0%	1,0%	
IST-Miete VE, Tj:	52	67	72	74	76	78	80	82	83	85	87	3,0%
Wachstumsrate:		29,2%	7,7%	2,8%	3,0%	2,5%	2,4%	2,1%	2,4%	2,0%	2,0%	

KOSTEN HERRICHTUNG VE

	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	EXIT
Anzahl Mieterwechsel, gesamt:	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3
Kosten Herrichtung pro nicht modernisierte VE, t:	16.000	16.200	16.646	16.979	17.219	17.665	18.019	18.379	18.747	19.121	-19.504
Anteil nicht modernisierte VE:	70%	60%	55%	45%	37%	31%	26%	22%	18%	15%	15%
Anzahl der herzurichtenden VE, nicht modernisiert:	1,6	1,3	1,1	1,0	0,8	0,7	0,6	0,5	0,4	0,4	0,4
Kosten Herrichtung VE nicht modernisiert, t:	-25.200	-21.848	-18.943	-16.423	-14.239	-12.345	-10.703	-9.280	-8.046	-6.975	-6.018
Kosten Herrichtung pro modernisierte VE, t:	-1.000	-1.020	-1.040	-1.061	-1.082	-1.104	-1.126	-1.149	-1.172	-1.195	-1.218
Anteil modernisierte VE:	30%	40%	45%	55%	63%	69%	74%	78%	82%	85%	85%
Anzahl der herzurichtenden VE, modernisiert:	0,7	0,9	1,1	1,3	1,4	1,6	1,7	1,7	1,8	1,9	1,9
Kosten Herrichtung VE modernisiert, t:	-675	-929	-1.157	-1.361	-1.546	-1.713	-1.865	-2.005	-2.133	-2.253	-2.355
Kosten Herrichtung VE • Umnutzung, insgesamt:	-25.875	-22.778	-20.100	-17.784	-15.784	-14.058	-12.568	-11.284	-10.179	-9.228	-8.318
Kosten pro Mieterwechsel:	-11.500	-10.124	-8.923	-7.804	-7.015	-6.245	-5.596	-5.015	-4.524	-4.162	-3.862
Kosten pro Mieterwechsel pro qm:	-35,73%	-14,50	-27,80	-24,60	-21,83	-19,44	-17,28	-15,61	-14,08	-12,76	-11,62
Rendite auf Mieterwechsel:	8,4%	7,6%	8,2%	8,7%	9,6%	10,6%	12,0%	13,1%	14,8%	16,6%	

Part III: Cash Flow Calculation

10 YRS CASH FLOW

	per sqm	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	Exit	Growth
Gross Rental Income, Residential:	77,1	67	72	75	77	79	81	82	84	86	88	88	3,0%
Vacancy:	-0,8	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
Vacancy Ratio:	-1,0%	-1,0%	-1,0%	-1,0%	-1,0%	-1,0%	-1,0%	-1,0%	-1,0%	-1,0%	-1,0%	-1,0%	
Net Rental Income, Residential:	76,3	67	72	74	76	78	80	82	83	85	87	87	3,0%
Gross Rental Income, Commercial:	4,1	4	2,0%										
Vacancy:	-0,2	0	0	0	0	0	0	0	0	0	0	0	
Vacancy Ratio:	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	
Net Rental Income, Commercial:	3,9	3	3	4	2,0%								
Gross Rental Income, Parking:	5,1	4	5	1,5%									
Vacancy:	-0,3	0	0	0	0	0	0	0	0	0	0	0	
Vacancy Ratio:	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	
Net Rental Income, Parking:	4,9	4	1,5%										
Gross Rental Income, Total:	86,3	75	81	83	85	87	89	91	93	95	97	97	2,9%
Vacancy:	-1,2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
Vacancy Ratio:	-1,4%	-1,4%	-1,4%	-1,4%	-1,4%	-1,4%	-1,4%	-1,4%	-1,4%	-1,4%	-1,4%	-1,4%	
Net Rental Income, Total:	85,1	74	80	82	84	86	88	90	92	94	96	96	2,9%
Running Maintenance:	-5,0	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	
Periodic Maintenance:	-3,2	-8	0	-25	0	0	0	0	-21	0	0	0	
Refurbishment Residential:	-23,6	26	-23	20	-18	16	-14	13	-11	10	-9	-8	
Refurbishment Commercial:	-11,2	-15	0	0	0	0	0	0	0	0	0	0	
Costs For Unrated Areas:	-0,3	0	0	0	0	0	0	0	0	0	0	0	
Management, Residential:	-4,7	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	
Management, Commercial:	-0,1	0	0	0	0	0	0	0	0	0	0	0	
Management, Parking:	-0,2	0	0	0	0	0	0	0	0	0	0	0	
Other Costs:	-1,0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
Interest Administration:	-3,0	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	
Costs / Cash outflow:	-70,3	-61	-36	-58	-31	-29	-27	-47	-25	-24	-21	-21	-9,8%
Costs, Item:		-70,3	-40,8	-66,7	-35,7	-33,0	-30,6	-53,5	-28,5	-27,8	-23,5	-23,5	
Cash Flow:	14,8	13	44	24	53	57	60	63	45	69	72	75	19,3%
Anteil VE Einnahmen:		90%	90%	90%	90%	91%	91%	91%	91%	91%	91%	91%	
Anteil GE Einnahmen:		5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
Anteil STPL Einnahmen:		6%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	
Cash Flow IRR-Calculation Total Investment:	-1,22	13	44	24	53	57	60	63	45	69	72	75	
Cash Flow IRR-Calculation Condominium Potential:	-1,22	13	44	24	53	57	60	63	45	69	72	75	

Part VI: Results

KEY FACTS FROM VALUATION		Initial	Exit
Price:	1,035	Share of Income, Residential:	30%
- Price per sqm:	1,198	Share of Income, Commercial:	5%
Transaction Costs:	87	Share of Income, Parking:	6%
Price + Transaction Costs:	1,122		
Yield:	4,68%	Yield demand on Residential:	4,50%
IRR on Total Investment:	6,32%	Yield demand on Commercial:	6,25%
Total Return (including Condominium Potential, 10 year Perspective)	9,24%	Yield demand on Parking:	5,00%
Exit Value as Investment Property:	1,543	Multiplier:	14,1
- Per sqm:	1,768	Maintenance without Infl. p. a f sqm.:	-10,00
Exit Value as Condominium Property:	2,008	Initial Fluctuation Cost per apartment:	-11,500
- Per sqm:	2,300		
		Market Rent, residential:	9,30
		Average Rent, residential:	7,63
		Fluctuation, residential:	15%