

Finance 673

Real Property Valuation

Department of Finance
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Income Capitalization Framework and Concepts

Capitalization of Income

- Definition - *the conversion of income into value*
- Types of capitalization
 - Direct capitalization
 - Yield capitalization
- Nature of income capitalized
 - Income for a single year for direct capitalization
 - Income over holding period (projection) for yield capitalization
- Choice of a capitalization technique depends on
 - Purpose of the analysis
 - Type of property
 - Availability of data
 - Motivations of buyers and sellers

Types of Income to be Capitalized

- Potential gross income (PGI)
 - Definition - *Total income attributable to real property at full occupancy before operating expenses and vacancy and collection losses are deducted*
 - Analyzed on an annual basis
 - Includes
 - Rent for all space in the property
 - Rent from escalation
 - All other income to the real estate
- Effective gross income (EGI) - *Anticipated income from all operations of the real property after an allowance is made for vacancy and collection loss*

Types of Income to be Capitalized (continued)

- Net operating income (NOI or I_O) - *Actual or anticipated net income that remains after all operating expenses are deducted from effective gross income, but before mortgage debt service and book depreciation are deducted*
- Mortgage debt service (DS or I_M)
 - Definition - *The periodic payment for interest on and retirement of the principal of a mortgage loan*
 - Deducted from I_O to derive pre-tax cash flow
 - Can be capitalized to estimate the lender's interest
- Pre-tax (before tax) cash flow (ECF, BTCF or I_E) - *The portion of the net operating income that remains after debt service*

Types of Income to be Capitalized (continued)

- Land income (I_L)
 - Definition - *That portion of I_O attributable to capital invested in land*
 - Separate estimates
 - Some capitalization techniques require separate estimates of land and building income in order to estimate values for each
 - Land lease income - vacant and improved properties
- Building income (I_B)
 - Definition - *That portion of I_O attributable to building improvements*
 - Often estimated in HBU by determining income derived rate of return on the cost of the building

Direct Capitalization

- Definition - *a method used to convert an estimate of a single year's income into an indication of value in one direct step - either by dividing the income by an appropriate rate or by multiplying the income by an appropriate factor*
- Income expectancy
 - anticipated income for first year following the effective date of the appraisal
 - income for previous year sometimes a proxy for following year

Direct Capitalization (continued)

- Important considerations related to income
 - Consistent definition of income for subject property and comparables
 - Stabilization of erratic income
 - Avoid averaging income over several years
 - Yield capitalization may be more appropriate when income is expected to vary over the projection period

Direct Capitalization (continued)

- Rate or factor selected to capitalize income
 - Represents relationship between income and value observed in the market
 - Derived through comparable sales analysis
 - Calculate *rate* by dividing income by price paid for the income stream
 - Calculate a *factor* (multiplier) by dividing price paid for the income stream; a factor (multiplier) is the reciprocal of a rate

Direct Capitalization (continued)

- Assumptions of direct capitalization
 - Method is market oriented
 - Method infers investor's assumptions based on market evidence
 - the selected factor (multiplier) or rate will satisfy a typical investor
 - the prospects for future monetary benefits, over and above the amount originally invested, are sufficiently attractive

Yield Capitalization

▪ Definition - a method used to convert future benefits, typically a periodic income stream and reversion, into present value by discounting each future benefit at an appropriate yield rate or by applying an overall rate that explicitly reflects the investment's income pattern, change in value and yield rate

Yield Capitalization (continued)

- Two main methods
 - Specific cash flow identified for each year of a projected holding period including the cash flow from resale. Each cash flow discounted at an appropriate rate
 - DCF analysis
 - Assumptions made about expected change in income and value over holding period
 - Mathematical formula used to calculate present value (with this method a capitalization rate is often developed as part of the mathematical process)
 - Mortgage-equity analysis
 - Ellwood formula

Yield Capitalization (continued)

- Rate of return on investor's capital explicit in choice of yield rates
- Implied capitalization rate
 - Find value by discounting the cash flows
 - First year's income expectancy is divided by that value to arrive at an implied capitalization rate

Yield Capitalization (continued)

- Market based
 - Income projections should reflect reasonable expectations of market participants at the effective date of value
 - Discount rates should reflect the rate of return that investors would require given the level of interest rates and yield rates on alternative investments at the time of the valuation
- Yield capitalization terminology
 - Discounting - a procedure used to convert periodic incomes, cash flows and reversions into present value
 - Discount rate - a rate used to convert future payments or receipts into value

Direct Capitalization vs. Yield Capitalization

- Income capitalization can be used to simulate investor behavior
 - Investors in small residential income properties might typically purchase on the basis of EGIMs
 - Thus, appraiser could estimate value on basis of EGIMs
 - Investors in large multitenant office buildings might typically project future cash flows by analyzing each lease and considering the impact of lease renewals and the property's sale at the end of the holding period
 - Simulate this process through DCF model

Direct Capitalization vs. Yield Capitalization (continued)

- Income capitalization requires reliable estimates of income for the subject property and the selection of appropriate capitalization rate or factor (multiplier) or an appropriate discount rate
 - Direct capitalization usually involves comparable sales to develop rates
 - Does not require explicit projections of income for the subject property
 - Assumes that expectations for future income are similar for the subject and the comparables from which the rates were extracted
 - Reliable income rates from sales must be obtained

**Direct Capitalization vs. Yield Capitalization
(continued)**

- ▶ Yield capitalization does not usually rely on comparable sales
 - However, requires the selection of appropriate discount rates
 - Discount rate should reflect what investors expect to earn on comparable sales as well as other investment alternatives with similar risk

**Investment Value v.
Market Value**

- Definitions
 - ▶ Investment value - value to a specific investor based on their individual requirements
 - ▶ Market value - value to the typical, or most likely, investor
- Difference between investment and market value depends on assumptions about the investor, not the particular technique used to capitalize income

**Investment Value v.
Market Value (continued)**

- Market value and investment value coincide if the client's investment criteria are typical of investors in the market
 - ▶ Investor may be willing to pay more than market value because of unique investment objectives
 - ▶ Owner-investor may place higher value on property than current market value

East Jackson
 Item 1X
 SCHEDULE OF PROSPECTIVE CASH FLOW
 In Indian Dollars for the Fiscal Year beginning 10/1/1998

For the Years Ending	Year 1 Sep-1998	Year 2 Sep-2000	Year 3 Sep-2001	Year 4 Sep-2002	Year 5 Sep-2003
POTENTIAL GROSS REVENUE	\$13,280	\$13,280	\$13,280	\$13,280	\$13,280
Less Rental Revenue	13,280	13,280	13,280	13,280	13,280
Scheduled Base Rental Revenue	332	672	1,021	1,376	
CPA & Other Adjustment Revenue					
TOTAL POTENTIAL GROSS REVENUE	13,280	13,952	14,301	14,656	14,680
Collection Loss	(200)	(200)	(200)	(200)	
EFFECTIVE GROSS REVENUE	12,848	13,752	14,101	14,456	14,480
OPERATING EXPENSES					
Contract and Incentives	612	538	664	803	622
Property Tax	840	872	758	741	778
Property Insurance	100	168	176	186	184
Management Fee	518	531	544	568	571
TOTAL OPERATING EXPENSES	1,870	1,969	1,960	2,077	2,163
NET OPERATING INCOME	11,138	11,783	12,141	12,379	12,317
LEASING & CAPITAL COSTS					
Replacement Leases	400	400	400	400	400
TOTAL LEASING & CAPITAL COSTS	400	400	400	400	400
CASH FLOW BEFORE DEBT SERVICE & INCOME TAX	\$10,738	\$10,383	\$11,741	\$11,979	\$11,917

Disclosed Cash Flow Analysis

	1	2	3	4	5	6	7	8	9	10	11
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Potential Gross Income (PGI)	\$2,482,102	\$2,581,353	\$2,684,555	\$2,791,538	\$2,902,815	\$3,019,760	\$3,142,550	\$3,266,172	\$3,396,819	\$3,533,682	\$3,677,890
Vacancy Rate (Physical)	15.00%	14.00%	13.00%	12.00%	11.00%	10.00%	9.00%	8.00%	7.00%	6.00%	5.00%
Vacancy Rate (Economic)	17.00%	16.00%	15.00%	14.00%	13.00%	12.00%	11.00%	10.00%	9.00%	8.00%	7.00%
Vacancy Allowance (Economic)	\$424,156	\$413,096	\$412,603	\$418,791	\$425,961	\$432,961	\$441,263	\$449,906	\$458,932	\$468,369	\$478,192
Mobile	\$9,218	\$9,811	\$10,078	\$10,482	\$10,951	\$11,471	\$12,041	\$12,661	\$13,331	\$14,051	\$14,821
Rent Commission	\$27,780	\$10,479	\$10,737	\$10,967	\$11,165	\$11,340	\$11,500	\$11,646	\$11,779	\$11,891	\$12,000
Other Income	\$61,002	\$62,620	\$64,355	\$66,228	\$68,245	\$70,401	\$72,691	\$75,119	\$77,689	\$80,405	\$83,271
Uncollectibles											
Effective Gross Income (EGI)	\$2,021,010	\$2,144,880	\$2,261,947	\$2,382,747	\$2,486,854	\$2,606,800	\$2,731,297	\$2,860,266	\$2,993,888	\$3,132,310	\$3,275,698
Operating Expenses											
Administrative	\$74,035	\$77,527	\$80,528	\$83,864	\$87,218	\$90,707	\$94,335	\$98,109	\$102,030	\$106,115	\$110,358
Advertising/Promotion	\$75,460	\$78,213	\$81,248	\$84,590	\$88,047	\$91,786	\$95,784	\$100,041	\$104,564	\$109,363	\$114,447
Professional Services	\$76,109	\$78,513	\$81,033	\$83,771	\$86,729	\$90,000	\$93,591	\$97,504	\$101,749	\$106,336	\$111,265
Repairs and Maintenance - Site	\$77,120	\$79,621	\$82,241	\$85,083	\$88,147	\$91,434	\$94,945	\$98,681	\$102,641	\$106,926	\$111,536
Repairs and Maintenance - Buildings	\$43,298	\$28,849	\$30,003	\$31,203	\$32,451	\$33,749	\$35,098	\$36,500	\$37,957	\$39,470	\$41,039
Payroll and Maintenance - Onsite	\$78,029	\$82,046	\$86,389	\$91,064	\$96,079	\$101,439	\$107,149	\$113,214	\$119,641	\$126,437	\$133,601
Payroll Commission	\$75,128	\$78,891	\$82,920	\$87,226	\$91,809	\$96,657	\$101,769	\$107,145	\$112,886	\$118,991	\$125,459
Payroll Tax	\$47,344	\$49,822	\$51,858	\$53,531	\$55,340	\$57,285	\$59,366	\$61,584	\$63,941	\$66,436	\$69,069
Utilities	\$75,611	\$78,288	\$81,155	\$84,212	\$87,459	\$90,897	\$94,526	\$98,347	\$102,360	\$106,565	\$110,963
Management Fee	\$80,840	\$82,789	\$84,879	\$87,106	\$89,561	\$92,244	\$95,143	\$98,266	\$101,621	\$105,208	\$109,027
Real Estate Fees	\$108,484	\$105,349	\$102,232	\$101,175	\$100,198	\$100,078	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Insurance	\$92,028	\$92,662	\$93,322	\$94,007	\$94,716	\$95,449	\$96,206	\$97,000	\$97,829	\$98,683	\$99,562
Total Operating Expenses	\$1,287,887	\$1,321,515	\$1,354,812	\$1,388,231	\$1,421,743	\$1,456,322	\$1,491,977	\$1,528,762	\$1,566,689	\$1,605,741	\$1,645,931
Operating Expense Ratio (OER)	0.5431	0.5229	0.5317	0.5394	0.5472	0.5549	0.5626	0.5702	0.5778	0.5853	0.5928
Reserve for Replacement	\$55,400	\$55,400	\$55,400	\$55,400	\$55,400	\$55,400	\$55,400	\$55,400	\$55,400	\$55,400	\$55,400
Total Expenses	\$1,343,287	\$1,376,915	\$1,410,212	\$1,443,631	\$1,477,143	\$1,510,722	\$1,544,377	\$1,578,162	\$1,612,089	\$1,646,141	\$1,680,331
Net Operating Income (NOI)	\$678,023	\$763,665	\$847,135	\$934,516	\$1,025,111	\$1,118,478	\$1,214,320	\$1,312,504	\$1,413,199	\$1,516,569	\$1,623,367

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