ANSWERS TO STUDY QUESTIONS

Chapter 11

11.1. NOI is the operating revenue minus the operating expenses. Apart from extraordinary capital improvement expenditures or partial sales proceeds, the NOI represents the net cash flow spun off by the property. This cash flow is distributed first to any debt holders (mortgage payments), second to the government for income tax obligations, and third to the equity investor.

11.3. Capital improvement expenditures include tenant improvement expenditures (TI), leasing commissions and other major expenditures that provide long-term improvement to the physical quality of the property, such as replacing heating or adding a parking lot. The characteristic of capital improvement expenditures that distinguishes them from regular operating expenses is that capital expenditures occur less frequently, at irregular intervals of time.

11.5. a. Normally, the going-out cap rate should be either equal to or greater than the going-in cap rate (i.e., the terminal price/earnings ratio would be equal to or lower than the initial price/earnings ratio at the time of purchase).

b. This is because the building will be older at the time of sale and hence usually perceived to be at least as risky as it was at the time of purchase, with no more (and perhaps less) further growth opportunities for the rents it can charge.

c. The more money projected to be spent on capital improvements prior to the end of the holding period, the less need for future capital expenditures by those purchasing the building in the resale, and the greater the possibility for the building to continue to grow the rents it can charge beyond the end of the holding period. So, greater capital improvement expenditures during the holding period will justify expectations of a lower going-out cap rate (higher terminal price/earnings ratio) than would otherwise be the case.

d. The going-in cap rate is inversely related to the state of the property market at the time of property purchase. If the property market is very strong at that time, the going-in cap rate might be abnormally low, and vice versa—if the market is depressed, the going-in rate might be abnormally high. This latter situation could conceivably justify a going-out rate projection lower than the going-in rate projection.

11.7. You should include the opportunity cost of property management as an operating expense subtracted from the property NOI even if you are going to manage the property yourself, because the NOI should reflect the net earning potential of the property, per se, not your earning potential as a property manager. You should not confuse return on property capital with return on your human capital or labor as a property manager. The opportunity cost can be determined as the cost to hire a professional property manager to manage the property for you.

11.9. Unlike public markets, private markets may not have sufficient volume of trading of assets and/or sufficient information about transaction prices and asset income yields for investors to make informed judgments about the ex ante returns prevailing in the market. Thus, it may be more difficult to determine discount rates to employ in valuing assets traded in private markets compared to public markets.

11.11. This difference reflects a greater ex ante risk premium applied by investors in noninstitutional property. Properties that are less fully occupied, or in need of major development or redevelopment investment, or that are occupied by tenants that are less creditworthy, will clearly carry greater uncertainty about their future net cash flow generation potential and about the quality of information available about the property. Secondly, smaller-scale individual investors tend to dominate the asset market

for the smaller noninstitutional properties, while large financial institutions and REITs dominate in the institutional asset market. This different investor clientele may have different risk perceptions and preferences. This could also explain higher expected returns for noninstitutional properties.

11.13.

Year	1	2	3	4	5	6	7	8	9	10
Rent roll	$10,800	$11,124	$11,458	$11,801	$12,155	$12,520	$12,896	$13,283	$13,681	$14,092
Vacancy	$831	$856	$881	$908	$935	$963	$992	$1,022	$1,052	$1,084
Oper. exp.	$4,500	$4,635	$4,774	$4,917	$5,065	$5,217	$5,373	$5,534	$5,700	$5,871
NOI	$5,469	$5,633	$5,802	$5,976	$6,156	$6,340	$6,531	$6,726	$6,928	$7,136
Cap. impr.	$0	$0	$3,000	$0	$2,500	$0	$0	$0	$0	$0
PBTCF	$5,469	$5,633	$2,802	$5,976	$3,656	$6,340	$6,531	$6,726	$6,928	$7,136

11.15.

Year	Market Net Rent	Building Expected Rent	Vacancy Allowance	Capital Expenditures (TI Cost)	Reversion	Cash Flow per SF	Building Cash Flow
0						($200.00)	($30,000,000)
1	$18.00	$20.00	$0.00	$0.00		$20.00	$3,000,000
2	$18.45	$18.45	($9.23)	($10.00)		($0.77)	($116,250)
3	$18.91	$18.45	$0.00	$0.00		$18.45	$2,767,500
4	$19.38	$18.45	$0.00	$0.00		$18.45	$2,767,500
5	$19.87	$18.45	$0.00	$0.00		$18.45	$2,767,500
6	$20.37	$18.45	$0.00	$0.00		$18.45	$2,767,500
7	$20.87	$20.87	($10.44)	($10.00)		$0.44	$65,586
8	$21.40	$20.87	$0.00	$0.00		$20.87	$3,131,172
9	$21.93	$20.87	$0.00	$0.00		$20.87	$3,131,172
10	$22.48	$20.87	$0.00	$0.00	$224.80	$245.67	$36,850,472
					PV =	$157.17	$23,575,295
					NPV =		($6,424,705)
					Asking IRR =		8.42%
					Asking Cap Rate =		10.00%
					Market Cap Rate =		12.73%

Note that the two buildings (or scenarios) described in Questions 11.14 and 11.15 have very different market values and very different market-value-based cap rates (9.83% versus 12.73%), even though they have the same initial cash flow (and a seller might attempt to catch an unwary buyer by offering both buildings at the same asking cap rate). That is, to make the investment have a zero NPV, the building in Question 11.14 should sell at a cap rate of 9.83%, while the building in Question 11.15 should sell at a cap rate of 12.73%. The difference in this case is caused by the difference in the lease structures (the pattern of lease expiration dates), combined with a different relationship between the existing ("vintage") lease rents and the current market rents in the space market in which the buildings are situated. This is a case in which simple application of direct capitalization could give a misleading result. Perhaps the building in Question 11.14 is in the more typical situation, and so one observes most buildings selling in this asset market at a cap rate of around 10%. But if the building you are looking at is in the situation of that in Question 11.15, the typical 10% rate is not appropriate for it. A full-blown multi-year DCF analysis will tend to catch this type of error.

11.17. a.

Assumptions…				
Office Building leasable SF	80,000			
2 tenants occupy 40,000 SF each		*tenant #1:*	15 years remain on a fully net fixed payment lease @ $15 per year	
Triple Net Leases		*tenant #2:*	current net rent	$18.00 per SF
Current Market Rent / SF	$20.00		lease expires in 1 year	
Growth Rate for Market Rent	2.00%		probability of renewal =	80.00%
1st year Oper. Expenses	$6.00		vacancy if no renewal =	4 months
Holding Period	5 years		TI if no renewal =	$10.00 per SF
Terminal Cap Rate	9.00%		TI if renewal =	$0.00 per SF
Selling Expenses	3.00%			
Unlevered Mkt. Req. Return	10.50%			
(or going in IRR on property)				

Pro Forma and Valuation…

	0	1	2	3	4	5	6
I. Operating Cash Flows							
Market Net Rent per SF		20.00	20.40	20.81	21.22	21.65	22.08
Potential (Net) Rental Income:							
Space 1 40,000 SF		600,000	600,000	600,000	600,000	600,000	600,000
Space 2 40,000 SF		720,000	816,000	816,000	816,000	816,000	816,000
Expected Building Rent		1,320,000	1,416,000	1,416,000	1,416,000	1,416,000	1,416,000
Vacancy Allowance:							
Space 1		0	0	0	0	0	0
Space 2		0	**54,400**	0	0	0	0
Total Turnover Vacancy Cost		0	54,400	0	0	0	0
Operating Expenses		480,000	494,400	509,232	524,509	540,244	556,452
Building Level							
Reimbursed by Tenant 1		240,000	247,200	254,616	262,254	270,122	278,226
Reimbursed by Tenant 2		240,000	230,720				
Owners share of OEs		0	**16,480**				
Net Operating Income (NOI)		1,320,000	1,345,120	1,416,000	1,416,000	1,416,000	1,416,000
CapEx = TIs in this case		0	**80,000**	0	0	0	0
= PBTCF		**1,320,000**	**1,265,120**	**1,416,000**	**1,416,000**	**1,416,000**	**1,416,000**
II. Reversionionary Cash Flows							
Expected Sale Price						15,733,333	
– Selling Expenses						472,000	
= Net Sale Price						**15,261,333**	
Expected Total Property Cash Flow	**$14,353,069**	**1,320,000**	**1,265,120**	**1,416,000**	**1,416,000**	**16,677,333**	

= PV{Expected Total Cash Flows in years 1 through 5 @ market required (unlevered) return}

b. The 10.50% discount rate incorporates a risk premium that blends the very different risks associated with the two tenants' leases.