Solutions to Questions - Chapter 9
Income Producing Properties: Leases, Rents, and the Market for Space

Question 9-1

How does the use of leases shift the risk of rising operating expenses from the Lessor to the Lessee?
Leases determine how much risk will be borne by the lessor versus the lessee. Future increases in market rent might be compensated for by including an inflationary adjustment, such as a CPI adjustment. In the case of a CPI adjustment, the risk is shifted to the lessee, because the change in rents is not known in advance. If the lessee is responsible for any unexpected increases in the level of inflation, the lessor is insured that the real value of the lease will be preserved. The lessor can shift additional risk to the lessee by including net lease or expense stop provisions in the lease. It is important to note, however, that we would expect the lessor to accept a lower base rent as the burden of risk from inflation and property expense costs are shifted to the lessee.

Question 9-2

What is the difference between base rent and effective rent?
Base rent reflects rent that will be paid per rentable square foot of leased space. It does not include additional items such as tenant improvement costs, expense pass throughs and other costs that are included when calculating effective rents.

Question 9-3

What is meant by usable vs. rentable space?
Usable space is the area actually occupied by the tenant. Rentable space is usable space plus a share of common area in a property which is included in the load factor.

Question 9-4

What are CAM charges?
These are expenses related to common area maintenance of hallways, lobbies, etc. that are usually prorated and passed on to tenants.

Question 9-5

What are pass through expenses, recoverable expenses and common area expenses? Give examples of each.

Pass throughs are expenses such as electricity, insurance, and property taxes that are billed directly to tenants on the basis of the rentable area that they occupy.

Recoverables are expenses incurred by owners for specific expenses identified in a lease such as security, maintenance, utilities, etc. and are pro-rated and billed to tenants.

Common areas include mall open areas, parking areas, lobbies, and hallways. Expenses related to these areas are referred to as common area expenses.

Question 9-6

What is an tenant estoppel? Why is it used?
It is a legal document used in many circumstances. In real estate, it is used by prospective investors to determine factual information about existing tenants, such as the amount of any rent owed, improvements promised by the current owners, etc.

Question 9-7

What is meant by "loss to lease"?
Many leases reflect market conditions and rents that existed when the lease was executed. Many financial statements estimate gross rental revenue based on (1) all rental space re-leased today at prevailing rents and compare that amount to (2) actual rental revenue based on leases that have been executed at various times in the past. The difference between (1) and (2) is "loss to lease", or the difference between current market rents and rents actually collected based on lease terms with each tenant.

Question 9-8

What types of expenses would property owners pay when operating and maintaining common areas? Give examples for office, retail, and warehouse properties.

Common area are for the benefit of all tenants. An example for office properties would be the lobby area. For retail properties a good example is enclosed malls where all the area not occupied by the store itself is common area to allow pedestrians to walk from store to store and use for special events. Warehouse properties might have a loading dock that is shared by all tenants. All of these property types might have parking as a common area. The tenants would often pay a pro-rata portion of the operating expenses related to these common areas such as property taxes, insurance, utilities and maintenance.

Solutions to Problems - Chapter 9

Introduction to Income-Producing Properties: Leases and Market for Space

Problem 9-1

a)

Discount rate		10.00%			
I. Net Lease with Steps:					
Year	1	2	3	4	5
Net Rent	$15.00	16.50	18.00	19.50	21.00
Average rent		$18.00			
Present value		$67.15			
Effective rent		$17.72			
II. Net Lease with 100% of CPI Adjustment:					
Year	1	2	3	4	5
Annual CPI		3.00%	3.00%	3.00%	3.00%
Net Rent	$16.00	16.48	16.97	17.48	18.01
Average rent		$16.99			
Present value		$64.04			
Effective rent		$16.89			
III. Gross Lease					
Year	1	2	3	4	5
Gross rent	$30.00	$30.00	$30.00	$30.00	$30.00
Less: expenses	$9.00	10.00	11.00	12.00	13.00
Net rent	21.00	20.00	19.00	18.00	17.00
Average rent		$19.00			
Present value		$72.74			
Effective rent		$19.19			

IV. Gross Lease with Expense Stop at $9.00 and CPI Adjustment:

Year	1	2	3	4	5
Exp. CPI		3.00%	3.00%	3.00%	3.00%
Gross rent	$22.00	$22.66	$23.34	$24.04	$24.76
Less: expenses	$9.00	10.00	11.00	12.00	13.00
Plus: reimbursement	0.00	1.00	2.00	3.00	4.00
Net rent	13.00	13.66	14.34	15.04	15.76

Average rent	$14.36
Present value	$53.94
Effective rent	$14.23

Note: Effective Rent = Present Value / PVIFA, 10%, 5yrs

b) With the first type of lease, the tenant bears the risk of any unexpected change in operation expense. For the lessor, although the lease includes a step-up, higher than anticipated inflation could erode the real value of the rental income.

The second alternative includes a CPI adjustment rather than fixed step-ups. The risk of unexpected inflation is shifted to the lessee.

The third alternative is a gross lease. This is much riskier for the lessor than any of the net leases. The lessor bears the risk if operating expenses differ from what is expected.

The fourth one is a gross lease that combines a CPI adjustment with an expense stop. This shifts the risk of any increases in expenses to the tenant, while retaining any decrease in expenses.

Overall, if we rank the alternatives in terms of risk to the lessor, from the least risky to the most risky, the order should be: Gross Lease with Expense Stop and CPI Adjustments, Net Lease with CPI Adjustments, Net Lease with Steps and Gross Lease. That is: 4<2<1<3.

Based on the analysis in (b), we might expect the effective rents for the four alternatives should exhibit the same order, from the least to the most risky to the lessor: 4<2<1<3. As the results showed in (a), the effective rents for four alternatives do rank the same way. The one with the most risk is also the one that offers the greatest effective rent.

Problem 9-2

(a) **Total rentable area in building if leased to one tenant:**

300,000 (total building area) – 45,000 (non-rentable area) = 255,000 sq.ft. (rentable)

(b) **Load Factor for 7th floor:**

- Total **rentable** space on 7th floor = 28,000
- **Common area** on 7th floor = 3,000, **usable area** = 25,000, **load** = 28,000 ÷ 25,000 = 1.12

(c) **Rentable area for tenant:**

5,000 usable x 1.12 load = 5,600 rentable

Rent: (5,600 x $30 psf) = $168,000 or $14,000 per month

(d) **If common area in lobby is included in load for all tenants, then 7th floor load could be adjusted upward as follows:**

(7th Floor Load) x l + (Other Common Area in Building / Total Building Rentable) or

1.12 x l+ (30,000 ÷ 255,000) or 1.12 x 1.118* = 1.25

1.25 x 5,000 = **6,258 rentable space to tenant**

* *30,000 ÷ 255,000 = 11.8%*

(e) Rent to tenant with full building load:

6,258 x $30 = $187,745 or $15,645 per month

Problem 9-3

(a)

Year	0	1	2	3	4	5
Cash Flows		$20	$21	$22	$23	$24

PV @ 10% = $82.68

Effective Rent PSF: **$21.81**

(b)

Year	0	1	2	3	4	5
Cash Flows	$150,000	$24	$25	$26	$27	$28

PV @ 10% = $97.84

Total PV of Lease ($97.84 x 20,000 sqft) =		$1,956,813
Less PVOF Moving Allowance		50,000 *(Year 0)*
Less PVOF Tenant Improvements		100,000 *(Year 0)*
NPV of Lease		**$1,806,814**
Square Feet of Rentable Space	**$**	**20,000**
NPV PSF		$ 90.34
Effective Rent		**$ 23.83**

Note: Effective rent paid to the owner is still greater with these allowances than is the case in (a). Therefore, lease (b) is better for owner.

(c)

Year	0	1	2	3	4	5
Cash Flows	$300,000	$23	$24	$25	$26	$27

PV Rents PSF @ 10% = $94.05

Total PV of Lease	($94.05 x 20,000 sq.ft.)	$ 1,880,998
Less Buyout		300,000
NPV of Lease		**$1,580,000 / 20,000 = $79.04 psf**

Effective Rent **$20.85**

The effective rent to owner of Atrium is lower than both alternatives (a) and (b) above, even if the buyout is paid monthly **during** year 1. Net rents would be $8 psf in year 1 and effective rent would be $21.21, which would continue to be lower than both cases (a) and (b) above. Therefore, when compared to (a) and (b), this alternative is not a good deal for the owner of Atrium.

Problem 9-4

In-line occupied area = 1,300,000 square feet

Common Area = Total area – Anchor tenant occupied area - In-line occupied area = 700,000 square feet

Total Maintenance cost = common area * maintenance cost psf = 700,000*$8 = $5,600,000

Anchor contribution to CAM = $2 per s.f. x 800 s.f. = $1,600,000

CAM (Additional rent per square feet covered by in-line tenant) = (total maintenance cost – anchor contribution) / In-line occupied area = ($5,600,000 - $1,600,000) /1,300,000 = $3.08 per square feet

In line tenants would have to pay $3.08 per sq.ft. in CAM charges, plus their base rent per square foot of rentable area.

Problem 9-5

(A) Option A is best because it gives higher effective rent psf. See the calculations below:

Option A

Year	1	2	3	4	5
Base Rent	$25.00	$ 26.00	$ 27.00	$ 28.00	$ 29.00
CAM	$ 3.00	3.18	3.37	3.57	$ 3.79
Net Rent	$28.00	29.18	$30.37	$ 31.57	$ 32.79
Present Value	=NPV(10%,Rent_each_year)	$114.31			
Effective rent/square foot		$ 31.71			

Option B

Year	1	2	3	4	5
Base Rent	$23.00	$24.00	$25.00	$26.00	$27.00
CAM	$ 3.00	$ 3.18	3.3708	3.57	3.79
Net Rent	$26.00	$27.18	$28.37	$29.57	$30.79
Sales	$850,000.000	935000	1028500	1131350	124485
Overage Rent	$ 0 -	$2,800	$10,280	$18,508	$27,559

PV of Net Rent	= NPV (10%, Ret_each_year)	$ 1,013,396.12
PV of Overage Rent	= NPV (10%, overage rent)	$ 36,949.02
PV of Total Rent Revenue	= Net Rent + Overage rent)	$ 1,050,345.14
Effective rent/square foot	= Effective rent/Rentable_ area	$ 29.14

(B) Even when sales is expected to grow by 20% per year, option A is still better than option B because it gives effective rent of $31.71 compared to effective rent of $30.73 for option B.

Year		**1**	**2**	**3**	**4**	**5**
Base Rent		$ 23.00	$ 24.00	$ 25.00	$ 26.00	$ 27.00
CAM		$ 3.00	$ 3.18	$ 3.37	$ 3.57	$ 3.79
Net Rent		$ 26.00	$ 27.18	$ 28.37	$ 29.57	$ 30.79
Sales		$850,000	$ 1,020,000	$ 1,224,000	$ 1,468,800	$ 1,762,560
Overage Rent		$ -	$ 9,600.00	$ 25,920.00	$ 45,504.00	$ 69,004.80

Calculate Effective Rent:		
PV of Net Rent	= NPV (10%, Rent_each_year)	$1,013,396.12
PV of Overage Rent	= NPV (10%, Overage Rent)	$ 94,176.20
PV of Total Rent Revenue	= Net Rent + Overage Rent	$1,107,572.32
Effective rent/square foot	= Effective rent/Rentable_area)	$ 30.73

Problem 9-6 (see notes A-E below for explanation)

Gross Potential Income (A)		1,620,000
Loss to Lease (B)		7,950
Vacancy & Collection Loss (C)		128,160
Net Rental Income		1,483,890
Recoveries (D)	220,800	
Other Income	200,000	420,800
Total Income		1,904,690
Operating Expenses (E)		893,200
NOI		1,011,490
Recurring Expenses	100,000	
Non-recurring Expenses	250,000	350,000
Net Cash Flow		661,490

Notes A-E

(A)

	1st 6 months	2nd 6 months	Total
40 units @ $550 @ 6 mos =	$132,000	@ 560 = 134,400	
80 units @ 600 @ 6 mos =	288,000	@ 610 = 292,800	
80 units @ 800 @ 6 mos =	384,000	@ 810 = 388,800	
Total	$804,000	816,000	$1,620,000

(B) 10 units * (550-500) 9 mos = 4,500
20 units * (600-580) 10 mos = 4,000
10 units * (805-800) 11 mos = (550)
$7,950

	1st 6 mos	2nd 6 mos		
(C)	4 units * 550 * 6 = 13,200	4 units * 560 *6 = 13,440		
	6 units * 600 * 6 = 21,600	6 units * 610 * 6 = 21,960		
	6 units * 800 * 6 = 28,800	6 units * 810 * 6 = 29,160		
	16	63,600	16	64,560	128,160

(D) 184 units @ 100 @ 12 mos = 220,800

(E) 184 units @ 400 @ 12 mos
+ $10,000 apt. locator = 893,200

Problem 9-7

Part (A)

SUMMER PLACE MALL

Revenue: Base Rents (400,000 sq. ft. @ $20)			**8,000,000**
Add:	Overage Rents	400,000	
	CAM recoveries	250,000	
Less:	Vacancy @ 10% of Base Rents	800,000	
Effective Gross Income			**7,850,000**
Less:	Operating Expenses		
	Maintenance/Repair	1,200,000	

	Management/Admin/Leasing	230,000	
	Property Taxes	1,715,000	
	Insurance	105,000	
Total Operating Expenses		**3,250,000**	
	Recurring Capital Expenses	160,000	3,410,000
Net Operating Income			**$4,440,000**

Part (B)

Future Pro Formas:
1) The possibility of vacancy reduction from a high level of 10%.
2) Operating expenses in the pro forma may be underestimated as to utility expense which may not be included in the statement.
3) The likelihood of overage rents continuing or increasing from current levels.
4) A lease rollover schedule should be developed to assess the probability of lease renewal among 40 tenants.
5) A market analysis to determine the likelihood of new retail (competitive) space coming into the marketplace.

Problem 9-8
Part (A)

BETTS DISTRIBUTION CENTER

Rent: (200,000 sq. ft. @$7.00)			**1,400,000**
Add:	Recoveries @ $1.50	300,000	
	Insurance	15,000	
	Property Taxes	50,000	365,000
Effective Gross Income			**$1,765,000**
Less:	Operating Expenses (NR)	400,000	
	Property Taxes	15,000	
	Insurance	50,000	
Total Operating Expenses		**465,000**	
	CapEx/Improvement Allowance	160,000	625,000
Net Operating Income			**1,140,000**

Part (B)

1) The possibility of future increases in property taxes and/or insurance.
2) An analysis of competing warehouse space in the market area.
3) Given the age (8 years) of the Center, is the Cap-ex Improvement allowance adequate for the next 5 years?
4) Is the tenant sound financially? What is the outlook for the industry in which it operates?
5) If the tenant is doing well financially, is there a possibility that we can expand the Center and increase the leasable space?

Problem 9-9
Part (A)

WEST OFFICE PLAZA

Revenue: (300,000 sq. ft. @$20)			**6,000,000**
Add:	Other Income (parking)	450,000	
	Recoverable Expenses	750,000	
Less:	Vacancy	300,000	
Effective Gross Income			**6,900,000**
Less:	Operating Expenses		
	Management/Admin/	695,000	
	Property Taxes	675,000	

Insurance	430,000	
Operating/Leasing	667,000	
Utilities	1,159,100	
Janitorial/Cleaning	489,000	
Business Taxes	110,000	
Total Operating Expenses	**4,225,100**	
CapEx/Improvement Allowance	700,000	4,925,100
Net Operating Income		**1,974,900**

Part (B)

1) Market survey of competing properties to determine vacancy/rent trends.
2) Lease rollover schedule for West's 40 tenants to determine renewals/rents.
3) Adequacy of improvement allowance for an 8 year old property.
4) Review of other revenue sources (retail in lobby, cell towers, etc.)
5) Estimates of service employment growth in the relevant metro area—survey tenants to determine expansion possibilities.

Problem 9-10

(a) Only the leases with CPI adjustments are affected. The effective rent for the net lease with a CPI adjustment increases to $11.83 from $11.61. The effective rent for the gross lease with the expense stop and CPI adjustment increases to $11.59 from $11.30.

(b) Only the gross lease is affected because the owner has to pay the additional expenses. The effective rent on the gross lease drops to $11.69 versus $12.59. The owner is protected from the expense increase on the net lease and on the gross lease with expense stops.