

Raising Your Commercial IQ

101 How to Analyze and Value Income Properties Commercial Basics

In-House Program Participant Package

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Table of Contents

	2
WELCOME	4
Learning Processes	4
Calculator	4
Remember the formulas	4
Skills and benefits obtained from the in-house sessions	5
Real Estate Investment Analysis Formulas with sample calculations	6
INCOME & EXPENSE STATEMENT	6
FINANCIAL MEASURES	6
Potential Gross Income Multiplier (PGIM)	6
Effective Gross Income Multiplier (EGIM)	7
Cap Rate	7
Return on Equity or Cash On Cash	8
Operating Expense Ratio	8
Debt Service Ratio	9
GENERAL FINANCING MEASURES	9
COMMERCIAL REAL ESTATE. SAMPLE CALCULATIONS	10
AGENDA. TIME TABLE	18
FLASH CARD. QUESTIONS	22
Gross Income Multiplier calculations.	22
Cap Rate calculations	25
Understanding Cap Rates	28
Return on Equity and Cash on Cash calculations	30
Financing Ratios calculations	31
Calculating and using the Default Ratio (Breakeven Point)	34
Examining Operating Expenses	35
Quick Tips for analyzing Income & Expense Statements	37
Impact of future capital expenditures on value	38
Types of leases	39
Types of Rent	40
How to define & measure space	41
Tips on how to read a lease	43
Using Cap Rates. Issues & problems	45

Introduction to long term real estate investment analysis	46
Discounted Cash Flow Analysis (DCF)	48
Developing the Net Cash Flow	50
The Impact of Financial Leverage	52
The importance of professional engineering inspections	57
Valuing Income Properties with Development Potential	58

WELCOME

Thanks for participating in the Investit Academy In-House commercial program.

Getting started in commercial real estate is a challenge as there is a **lot to learn**.

The in-house Investit Academy program introduces the fundamentals of real estate investment analysis and valuation and discusses the issues, complexities and dangers involved in listing and selling income properties fast tracking you to commercial success.

Learning Processes

It is well known that we all have different ways we like to learn.

Recognizing this and to make the Investit Academy commercial in-house sessions interesting and to enhance the learning process the sessions consists of:

- 1) Video segments covering specific commercial topics
- 2) Flash cards sets which is a great way to learn basic terms and formulas
- 3) Quiz. At the end of the conclusion of in-house program there is a short quiz to test your understanding of the most common terms and formulas used in commercial real estate
- 4) Manual "101 How to Analyze and Value Income Properties" which is ideal for taking notes during the course and for a later review

Calculator

You will need to bring a calculator. It can be any kind of calculator. It doesn't have to be a financial calculator.

Remember the formulas

There are a few really important financial measures such as the Cap Rate that you need to learn and can write down and apply without referring to your manual or notes. They are:

Gross Income Multipliers

Cap Rate

Calculation of the Net Operating Income

Return on Equity. Also called Cash on Cash Return and Equity Dividend Rate

Default Ratio or Break-even Point

Ratios used by lender to determine loan amounts.

Loan to Value Ratio (LTV)

Debt Service Coverage Ratio. Also called Debt Service Ratio
or Debt Coverage ratio

Operating Expenses Ratio

Skills and benefits obtained from the in-house sessions

1. How to analyze and restructure “Income & Expense Statements” so that they more realistically represent the financial performance of the property
2. How to use the various financial measures such as the Gross Income Multiplier, Cap Rate, etc., to value an income property and appreciate the limitations of these simplistic approaches
3. Identify investment risks
4. Understand how important it is for the buyer of income properties to obtain professional engineering, tax and legal advice

The knowledge and skills developed during the in-house sessions will improve your ability to value, list and sell income properties and put deals together. Fast tracking you to success in commercial real estate.

Real Estate Investment Analysis Formulas with sample calculations

INCOME & EXPENSE STATEMENT

Income

Potential Gross Income (PGI) \$ _____

Less: Vacancy and Bad Debt Allowance _____

Equals: Effective Gross Income (EGI) \$ _____

Operating Expenses

Exclude: Depreciation

Mortgage Payments

Non-Operating Expenses

Capital Expenditures \$ _____

Net Operating Income (NOI) _____

Less: Debt Service (P + I) _____

Cash Flow Before Tax (CFBT) _____

Less: Income Taxes _____

Equals Cash Flow After Tax (CFAT) \$ _____

FINANCIAL MEASURES

Used to determine the value of income properties

Potential Gross Income Multiplier (PGIM)

Also called Potential Gross Rent Multiplier (PGRM)

$$\begin{aligned} \text{PGIM} &= \frac{\text{Market Value}}{\text{Potential Gross Income}} \\ &= \frac{\text{MV}}{\text{PGI}} \end{aligned}$$

OR

$$\begin{aligned} \text{Market Value} &= \text{Potential Gross Income} \times \text{PGIM} \\ &= \text{PGI} \times \text{PGIM} \end{aligned}$$

Effective Gross Income Multiplier (EGIM)

Also called Effective Gross Rent Multiplier (EGRM)

$$\begin{aligned}\text{EGIM} &= \frac{\text{Market Value}}{\text{Effective Gross Income}} \\ &= \frac{\text{MV}}{\text{EGI}}\end{aligned}$$

OR

$$\begin{aligned}\text{Market Value} &= \text{Effective Gross Income} \times \text{EGIM} \\ &= \text{EGI} \times \text{EGIM}\end{aligned}$$

Net Income Multiplier (NIM)

$$\begin{aligned}\text{NIM} &= \frac{\text{Market Value}}{\text{Net Operating Income}} \\ &= \frac{\text{MV}}{\text{NOI}}\end{aligned}$$

OR

$$\begin{aligned}\text{Market Value} &= \text{Net Operating Income} \times \text{NIM} \\ &= \text{NOI} \times \text{NIM}\end{aligned}$$

Cap Rate**Capitalization Rate (Cap Rate)**

Also called Broker's Yield

$$\begin{aligned}\text{Cap Rate (\%)} &= \frac{\text{Net Operating Income} \times 100}{\text{Market Value}} \\ &= \frac{\text{NOI} \times 100}{\text{MV}}\end{aligned}$$

OR

$$\begin{aligned}\text{Market Value} &= \frac{\text{Operating Income} \times 100}{\text{Cap Rate (\%)}} \\ &= \frac{\text{NOI} \times 100}{\text{Cap Rate (\%)}}\end{aligned}$$

Return on Equity or Cash On Cash**Return on Equity (ROE)**

Also called:

Equity Dividend Rate (EDR) Term used by appraisers

Cash on Cash

$$\text{ROE (\%)} = \frac{(\text{Net Operating Income} - \text{Debt Service}) \times 100}{\text{Equity}}$$

$$= \frac{\text{Cash Flow Before Tax} \times 100}{\text{Equity}}$$

$$= \frac{(\text{NOI} - \text{DS}) \times 100}{(\text{MV} - \text{Mtge.})}$$

Equity = Market Value – Mortgage

Debt Service = Principal & Interest Payment

OR

$$\text{Market Value} = \frac{(\text{NOI} - \text{DS}) \times 100}{\text{ROE (\%)}} + \text{Mortgage}$$

Default Ratio (Break-even) (%)

Using Potential Gross Income

$$= \frac{(\text{Operating Expenses} + \text{Debt Service}) \times 100}{\text{Potential Gross Income (PGI)}}$$

Using Effective Gross Income

$$= \frac{(\text{Operating Expenses} + \text{Debt Service}) \times 100}{\text{Effective Gross Income (EGI)}}$$

Operating Expense Ratio

$$= \frac{\text{Operating Expense} \times 100}{\text{Effective Gross Income}}$$

Used to check if the expenses are realistic

FINANCE MEASURES

Used by lenders to determine loan amounts for income properties.

Debt Service Ratio (DSR)

Also called Debt Coverage Ratio (DCR)

or Debt Service Coverage Ratio (DSCR)

Debt Service Ratio

$$\text{Debt Service Ratio (DSR)} = \frac{\text{Net Operating Income}}{\text{Debt Service}}$$

Debt Service = Principal & Interest Payments

Loan to Value Ratio

$$\text{Loan to Value Ratio \% (LTV)} = \frac{\text{Loan Amount} \times 100}{\text{Market Value}}$$

GENERAL FINANCING MEASURES

Rental Apartment Building Measures.

1. Price per Unit
2. Price per Sq. Foot (Using Suite Areas)
3. Rents per Sq. Foot per month
4. Operating Costs
 - a. Operating Costs per Unit per Year
 - b. Operating Cost per Sq. Foot per Year
5. Operating Expense Ratio (OER) = $\frac{\text{Operating Expense} \times 100}{\text{Effective Gross Income}}$

Used to check if the expenses are realistic

COMMERCIAL REAL ESTATE. SAMPLE CALCULATIONS

The following examples illustrate how to use the real estate formulas.

In Example No.1 the information is obtained for the property and the financial measures calculated.

In Example No. 2 the financial measures such as the Cap Rate are obtained for comparable sales and are used to calculate the Market Value for the subject property.

Example No. 1

Sale Price (Market Value):	\$3,165,000
Potential Gross Income:	\$306,000
Vacancy & Bad Debt Allowance:	4.5%
Operating Expenses:	\$58,000
Mortgage:	\$2,056,000
Mortgage Payment (P+i):	\$180,538
Number of Suites:	30
Total Rentable Area:	24,000 Square feet

Note: All figures are annual

Calculate:	Potential Gross Income Multiplier (PGIM)
	Effective Gross Income Multiplier (EGIM)
	Net Income Multiplier (NIM)
	Capitalization Rate (Cap Rate)
	Return on Equity (ROE)
	Default Ratio (Breakeven) based on:
	Potential Gross Income
	Effective Gross Income
	Debt Service Ratio (DSR)
	Loan to Value Ratio
	Price per Suite
	Price per Square Foot
	Rent per Square Foot per Month
	Operating Cost per Unit per Year
	Operating Cost per Square Foot per Year
	Operating Expense Ratio (OER) based on:
	Potential Gross Income
	Effective Gross Income

1. Construct the Annual Income and Expense Statement

Potential Gross Income	\$306,000
Less Vacancy & Bad Debt Allowance (4.5%)	<u>13,770</u>
Effective Gross Income	\$292,230
Operating Expenses	<u>58,000</u>
Net Operating Income	\$234,230
Less; Debt Service (P+i)	<u>180,538</u>
Cash Flow Before Tax	<u>\$ 53,692</u>

2. Calculate the Financial Measures

Potential Gross Income Multiplier (PGIM):

$$\text{PGIM} = \frac{\text{MV}}{\text{PGI}} = \frac{3,165,000}{306,000} = 10.34$$

Effective Gross Income Multiplier (EGIM):

$$\text{EGIM} = \frac{\text{MV}}{\text{EGI}} = \frac{3,165,000}{292,230} = 10.83$$

Net Income Multiplier (NIM):

$$\text{NIM} = \frac{\text{MV}}{\text{NOI}} = \frac{3,165,000}{234,230} = 13.51$$

Capitalization Rate (Cap Rate):

$$\text{Cap Rate} = \frac{\text{NOI}}{\text{MV}} = \frac{234,230 \times 100}{3,165,000} = 7.40\%$$

Return on Equity (ROE) Cash on Cash on Cash

$$\begin{aligned}
 \text{ROE} &= \frac{(\text{NOI} - \text{DS}) \times 100}{(\text{MV} - \text{Mortgage})} = \\
 &= \frac{\text{Cash Flow Before Tax} \times 100}{\text{Equity}} \\
 &= \frac{53,692 \times 100}{(3,165,000 - 2,056,000)} \\
 &= 4.84\%
 \end{aligned}$$

Default Ratio (Breakeven)

Based on Potential Gross Income:

$$\begin{aligned}
 \text{Default Ratio} &= \frac{(\text{Operating Expenses} + \text{Debt Service}) \times 100}{\text{Potential Gross Income}} \\
 &= \frac{(58,000 + 180,538) \times 100}{306,000} \\
 &= 77.95\%
 \end{aligned}$$

Default Ratio (Breakeven)

Based on Effective Gross Income:

$$\begin{aligned}
 \text{Default Ratio} &= \frac{(\text{Operating Expenses} + \text{Debt Service}) \times 100}{\text{Effective Gross Income}} \\
 &= \frac{(58,000 + 180,538) \times 100}{292,230} \\
 &= 81.63\%
 \end{aligned}$$

Debt Service Ratio (DSR)

Also called Debt Coverage Ratio (DCR)

Debt Service Coverage Ratio (DSCR)

$$\begin{aligned}
 \text{Debt Service Ratio} &= \frac{\text{Net Operating Income}}{\text{Debt Service (P+i)}} \\
 &= \frac{234,230}{180,538} \\
 &= 1.30
 \end{aligned}$$

Loan to Value Ratio %

$$\begin{aligned}
 \text{Loan to Value Ratio} &= \frac{\text{Loan Amount} \times 100}{\text{Market Value}} \\
 &= \frac{2,056,000 \times 100}{3,165,000} \\
 &= 64.96\%
 \end{aligned}$$

Price per Unit

$$\begin{aligned}
 \text{Price per Unit} &= \frac{3,165,000}{30} \\
 &= \$105,500
 \end{aligned}$$

Price per Square Foot

$$\begin{aligned}
 \text{Price per Sq. Ft} &= \frac{3,165,000}{24,000} \\
 &= \$131.88
 \end{aligned}$$

Rent per Sq. Foot per Mo.

$$\begin{aligned}
 \text{Rent per Sq. Ft} &= \frac{306,000}{24,000 \times 12} \\
 &= \$1.06
 \end{aligned}$$

Operating Costs per Unit per Year

$$\begin{aligned}
 \text{Operating Costs per Unit} &= \frac{\text{Operating Costs}}{\text{No. of Units}} \\
 &= \frac{58,000}{30} \\
 &= \$1,933 \text{ per Unit}
 \end{aligned}$$

Operating Cost per Square Foot per Year

$$\text{Operating Cost per Sq. Ft per Yr.} = \frac{\text{Operating Costs}}{\text{Rentable Area}}$$

$$= \frac{58,000}{24,000}$$

$$= \$2.42 \text{ per Sq. Ft}$$

Operating Expense Ratio (OER)

Based on Potential Gross Income:

$$\text{Operating Expense Ratio} = \frac{\text{Operating Expenses} \times 100}{\text{Potential Gross Income}}$$

$$= \frac{58,000 \times 100}{306,000}$$

$$= 18.95\%$$

Based on Effective Gross Income:

$$\text{Operating Expense Ratio} = \frac{\text{Operating Expenses} \times 100}{\text{Effective Gross Income}}$$

$$= \frac{58,000 \times 100}{292,230}$$

$$= 19.85\%$$

Summary

Potential Gross Income Multiplier (PGIM):	10.34
Potential Gross Income Multiplier (EGIM):	10.83
Net Income Multiplier (NIM):	13.51
Capitalization Rate (Cap Rate)	7.40%
Return on Equity (ROE)	4.84%
Default Ratio (Break even) based on:	
Potential Gross Income	77.95%
Effective Gross Income	81.63%
Debt Service Ratio (DSR)	1.30
Loan to Value Ratio	64.96%
Price per Suite	\$105,000
Price per Square Foot	\$131.88
Rent per Square foot per month	\$1.06
Operating Cost per Suite per Year	\$1,933
Operating Cost per Square Foot per Year	\$2.42
Operating Expense Ratio (OER) based on:	
Potential Gross Income	18.95%
Effective Gross Income	19.85%

Example No 2.

Potential Gross Income:	\$244,800
Vacancy & Bad Debt Allowance:	5.0%
Operating Expenses	\$49,300
Mortgage	\$1,685,000
Mortgage Payment (P+i)	\$147,500
Number of Suites	24
Total Rentable Area	18,720 Square feet

Note: All figures are annual

Calculate the Market Value using the following financial measures

Effective Gross Income Multiplier (EGIM): 9.30
 Net Income Multiplier (NIM): 12.50
 Capitalization Rate (Cap Rate): 8.00%
 Return on Equity (ROE): 5.57%

1. Start by constructing the Annual Income and Expense Statement

Potential Gross Income	\$244,800
Less Vacancy & Bad Debt Allowance (5.0%)	<u>12,240</u>
Effective Gross Income	\$232,560
Operating Expenses	<u>49,300</u>
Net Operating Income	\$183,260
Less; Debt Service (P+i)	<u>147,500</u>
Cash Flow Before Tax	<u>\$ 35,760</u>

2. Calculate the Market Value based on the:**Effective Gross Income Multiplier (EGIM):**

$$MV = \text{Effective Gross Income} \times \text{EGIM}$$

$$= 232,560 \times 9.30$$

$$= \$2,162,808$$

Net Income Multiplier (NIM):

$$MV = \text{Net Operating} \times \text{NIM}$$

$$= 183,260 \times 12.50$$

$$= \$2,290,750$$

Capitalization Rate (Cap Rate):

$$MV = \frac{\text{Net Operating Income} \times 100}{\text{Cap Rate}}$$

$$= \frac{183,260 \times 100}{8.0\%}$$

$$= \$2,290,750$$

Return on Equity (ROE):

$$MV = \frac{(\text{NOI} - \text{DS}) \times 100}{\text{ROE (\%)}} + \text{Mortgage}$$

$$= \frac{(183,260 - 147,500) \times 100}{5.57\%} + 1,685,000$$

$$= \$2,327,011$$

AGENDA. TIME TABLE**GROSS INCOME MULTIPLIERS & CAP RATES**

Line number	Play Micro Video	Play Flash Card Set	Manual Page Number	Participant Package Page number
1	Gross Income Multipliers (5 min)		6	
2	Cap Rates (4 min)		8	
3	Calculating the Cap Rate (2 min)		8	
4	Calculating the Net Operating Income (1 min)		9	
		Gross Income Multipliers		22
		Calculating Cap Rates		25
5	Finding Cap Rates (6 min)		10	
6	Cap Rates. Fundamental assumptions (2 min)		11	
7	Don't trust the Cap Rate (5 min)		11	
8	Understanding Cap Rates (4 min)		13	
10	Cap Rates and Risk (1 min)		13	
11	Cap Rate and Capital Appreciation (1 min)		13	
	Cap Rates and Equity requirements (1 min)		13	
	Cap Rates and House Prices (1 min)		14	
12	Cap Rates and Vacancy Risk (2 min)		14	
13	Cap Rate examples (1 min)		14	
	Locations with low Cap Rates		14	

	Cap Rates depend on the type of property (6 min)		15	
14	Cap Rates are influenced by? (8 min)		15	
15	Sensitivity analysis (6 min)		16	
		Understanding Cap Rates		28

FINANCIAL RATIOS

Line number	Play Micro Video	Play Flash Card Set	Manual Page Number	Participant Package Page number
1	Return on Equity (ROE) os Cash on Cash (6 min)		17	
2	Financing Ratios to determine loan amounts (3 min)		19	
3	Operating Expense Ratio (OER) (8 min)		20	
4	Default Ratio (Breakeven Point)) 2 min)		21	
5	Other Financial Measures (1 min)		22	
6	Which measure should you use? (3 min)		22	
7		Return on Equity and Cash on Cash		30
		Financing Ratios. Calculations		31
		Using the Default Ratio (Breakeven Point)		34

RENTAL APARTMENT BUILDINGS

Line number	Play Micro Video	Play Flash Card Set	Manual Page Number	Participant Package Page number
1	How to analyze a rental apartment building (6 min)		23	
2	Quick tips for analyzing Income and Expenses		24	

	(1 min)			
		How to examine operating expenses		35
		Tips for analyzing income and expenses		37
3	Analyzing an apartment building. Case study (15 min)		25	
		Impact of future capital expenditures on value		38

BUILDING INSPECTIONS

Line number	Play Micro Video	Play Flash Card Set	Manual Page Number	Participant Package Page number
1	The importance of engineering inspections (9 min)		35	

COMMERCIAL PROPERTIES

Line number	Play Micro Video	Play Flash Card Set	Manual Page Number	Participant Package Page number
1	Valuing commercial properties (3 min)		40	
2	Types of Leases and Rent (3 min)		41	
	Free Rent (1 min)		42	
3	Percentage Rents (1 min)		42	
4	Rentable areas (2 min)		43	
5	Quoting rents as a rate. Issues(1 min)		43	

6	Measuring space (1 min)		43	
7	Reading a lease. Trips and Traps (7 min)		44	
8		Types of Leases		39
9		Types of Rent		40
10		How to define and measure space		41
11		Tips for reading leases		43
12	Screening an investment (Case study) (3 min)		48	

INTRODUCTION TO LONG TERM INVESTMENT ANALYSIS

Line number	Play Micro Video	Play Flash Card Set	Manual Page Number	Participant Package Page number
13	Long Term Investment Analysis versus Cap Rate Approach (18 min)		50	
14	Long Term Real Estate Investment Analysis (12 min)		57	
15		Using Cap Rates. Issues and problems		45
16		Intro. Long term real estate investmemt analysis		46
17		Discounted cash flow analysis		48
18		Developing the Net Cash Flow and Internal Rate of Return (IRR). Example		50
19		Impact of financial leverage		52

VALUING EXISTING BUILDINGS WITH DEVELOPMENT POTENTIAL

Line number	Play Micro Video	Play Flash Card Set Other Topics	Manual Page Number	Participant Package Page number
20	Valuing obsolete buildings		63	

OTHER TOPICS. FLASH CARDS

Line	Play Micro Video	Play Flash Card Set Other Topics	Manual	Participant Package
------	------------------	-------------------------------------	--------	---------------------

number			Page Number	Page number
21		Why professional engineering inspections are so important		47
22		Valuing properties with development potential		58

FLASH CARD. QUESTIONS**Gross Income Multiplier calculations.**

Q1

There are two ways to calculate the Gross Income Multiplier.

What are they and what is the difference?

Answer

Q2

Write down the formulas for the:

Gross Income Multiplier (GIM)

Effective Gross Income Multipliers (EGIM)

Answer

Q3

If the Sale price of an income property is \$1,000,000 and Potential Gross Income is \$100,000 what is the Potential Gross Income Multiplier (PGIM)?

Answer

Q4

If the Sale price of an income property is \$1,000,000 and Potential Gross Income is \$100,000 and the Vacancy and Bad Debt Allowance is 10% what is the Effective Gross Income Multiplier (GIM)?

Answer

Q5

What are the formulas for calculating the potential selling price of an income property if you know the:

Potential Gross Income Multiplier (PGIM)

Effective Gross Income Multiplier (EGIM)

...from comparables?

How do you calculate the Effective Gross Income?

Answer

Q6

Based on the following information calculate the potential sales price using:

- 1) Potential Gross Income Multiplier (PGIM) of 11
- 2) Effective Gross Income Multiplier (EGIM) of 13

Potential Gross Income: \$100,000

Vacancy and Bad Debt Allowance: 10%

Answer

Q7

What does Bad Debt Allowance refer to?

Note. Also called "Credit Losses"

Answer

.

END OF SET

Cap Rate calculations

Q1

Write down the formulas for:

- 1) Calculating the Cap Rate
- 2) Determining the Sales Price using the Cap Rate from comparables

Answer

Q2

How would you define the Operating Expenses?

When using a Cap Rate to determine the value of an income property what expenditures should be removed from an Income and Expense statement when calculating the Net Operating Income (NOI)

Answer

Q3

Which of the following expenses should be removed from the Income and Expense Statement when using the Net Operating Income (NOI) and the Cap Rate to calculate the value of the property?

Put an “X” against the expenses that should be removed.

- Insurance
 - Property taxes
 - Upgrading the elevator
 - Elevator service contract
 - Landscaping service contract
 - Mortgage Interest costs
 - Repairs to a retaining wall
 - Security
 - Painting 40% of the building exterior
 - Property management
-

Q4

How do you calculate the Net Operating Income (NOI)?

Answer

Q5

Using the following information calculate the likely selling price using the Cap Rate approach to determine the value of the income property

Net Operating Income (NOI): \$100,000

Cap Rate: 5% (from comparables)

Answer

Q6

Using the following information calculate the Cap Rate

Net Operating Income (NOI): \$100,000

Sale Price: \$2,000,000

Answer

END OF SET

Understanding Cap Rates

Q1

The lower the Cap Rate the higher or lower the property value?

Circle your selection

Q2

Using an Net Operating Income (NOI) of \$100,000

Calculate the property value using a:

- 1) 5% Cap Rate
 - 2) 10% Cap Rate
-

Answer

Q3

From a BUYERS perspective which do they prefer? A higher or a lower Cap Rate?

From SELLERS perspective which to they prefer? A higher or a lower Cap Rate?

Circle your selections

Q4.

What are two fundamental assumptions that are made when using the Cap Rate to determine the value of an income property?

Answer

Q5

Why would an investor buy an income property at a 3.00% Cap Rate and finance with a first mortgage at 5.00%?

Answer

Q6

The higher the perceived risk the **HIGHER** or **LOWER** the Cap Rate?

Circle your selection

Q7

The higher the anticipated **CAPITAL APPRECIATION** the **HIGHER** or **LOWER** the Cap Rate?

Circle your selection

Q8

How does a **HIGH** Cap Rate effect the amount of **EQUITY** (Down Payment) needed by the investor?

Answer

END OF SET

Return on Equity and Cash on Cash calculations

Q1

The Return on Equity (ROE) goes under a number of different names.

Write them down.

Answer

Q2

Write down the formula for calculating Return on Equity (ROE) or Cash on Cash Return.

Answer

Q3

Calculate the Return on Equity (ROE) or Cash on Cash Return using the following information

Net Operating Income (NOI): \$150,000 per year

Debt Service: \$100,000 per year

Purchase Price: \$1,500,000?

Mortgage: \$1,000,000

Answer**END OF SET**

Financing Ratios calculations

Q1

Lenders use two ratios for determining the first mortgage amount

Write them down together with the formula and check your answers on the flip side

Answer

Q2

Using the following information calculate the:

- 1) Loan to Value Ratio(LTV)
- 2) Debt Service Coverage Ratio (DSCR)

Purchase Price: \$3,300,000

First Mortgage: \$2,300,000

Net Operating Income (NOI): \$210,000 per Yr.

Debt Service: \$165,000 per Yr. Annual (P +I) payment

Answer

Q3

How does the lender use the
 Loan to Value Ratio (LTV)
 Debt Service Coverage Ratio (DSCR)
to determine the loan amount of the first mortgage?

Answer

Q4

What are the common numbers that traditional first mortgage
lenders use for determining a loan amount for quality properties:

 Loan to Value Ratio (LTV)
 Debt Service Coverage Ratio (DSCR)

Answer

Q5

The Debt Service Coverage Ratio (DSCR) and the Loan to Value Ratio (LTV) are helpful
in determining whether and when a property can be refinanced.

If the lender uses:
 Loan to Value Ratio (LTV): 75% of appraised value
 Debt Service Coverage Ratio (DSCR): 1.25

Which one of the following properties has the potential to be refinanced with a larger
mortgage?

	Property A	Property B	Property C
Loan to Value Ratio	77%	72%	69%
Debt Coverage Ratio	1.28	1.20	1.29

Circle or tick your answer

Q6

From the lender's perspective what does a:

Loan to Value Ratio (LTV) of 75% of appraised value and a
Debt Service Coverage Ratio (DSCR) of 1.25 mean?

Answer

END OF SET

Calculating and using the Default Ratio (Breakeven Point)

Q1

Write down the formula for calculating the Default Ratio (Breakeven Point)

Answer

Q2

Answer

Q3

How do we use the Default Ratio or Breakeven Point?

Answer**END OF SET**

Examining Operating Expenses

Q1

Write down the formula for the Operating Expenses Ratio (OER)

Answer

Q2

How do we use the Operating Expense Ratio (OER)?

Answer

Q3

Which is best method for checking expenses?

Using the:

- 1) Operating Expense Ratio (OER) based on the Potential Gross Income (PGI)?
- 2) Operating Expense Ratio (OER) based on the Effective Gross Income (EGI)?

Tick or circle your answer

Q4

Using the following information calculate the Operating Expenses Ratio (OER) using the Effective Gross income (EGI)

Potential Gross Income (PGI): \$100,000 per Yr.

Vacancy: 5.00%

Operating Expenses: \$35,000 per Yr.

Answer

Q5

What are typical Operating Expense Ratios for:

- a) Rental apartment buildings
- b) Commercial buildings. Office, Industrial and Retail

Answer

Answer

The Operating Expenses Ratio (OER) varies widely depending on the age and condition of the building. For rental apartment buildings the OER varies widely depending on whether the landlord or the tenant pays for the heating of the unit and for hot water

Typical Operating Expense Ratios (OER)

Rental Apartment Buildings 35% to 45%+ including property management

Motels: 55% to 65% Operating Expense Ratio

Public Storage: 35% to 45% Operating Expense Ratio

Commercial Buildings

Office: 40% to 50%+ Incl. Pty Management

Industrial: 30% to 35%+ Incl. Pty Management

Retail: 45% to 50%+ Incl. Pty Management

Note. Use with caution. These are rough rules of thumb

END OF SET

Quick Tips for analyzing Income & Expense Statements

Q1

What is the best way to analyze individual revenue and expenses for a Rental Apartment Building?

Answer

Q2

List operating expenses which can be;

- a) quickly verified
 - b) hard to verify
-

Answer

Operating expenses that can be quickly verified

Operating Expenses that can hard to verify

END OF SET

Impact of future capital expenditures on value

Q1

Write down three examples of future capital expenditures that might lower the price that a buyer is willing to offer the seller.

Answer

1. _____
2. _____
3. _____

Q2

Calculate the price that a buyer might offer using the following information

Net Operating Income \$200,000

Market Cap Rate: 5.00% (From comparables)

As part of the diligence buyer engaged professional engineering firm to assess the building

The engineers estimated that there is \$700,000 of immediate and urgent repairs including replacing the roof and caulking the leaking windows

Answer**END OF FLASH CARD SET**

Types of leases

Q1

What is a Gross Lease?

Answer

Q2

What's the disadvantage of a Gross Lease from a landlord's perspective?

Answer

Q3

What's a Modified Gross Lease or a Gross Lease with an escalation clause?

Answer

Q4

What's a Triple net Lease (NNN)? Also called a Net Lease.

Answer**END OF SET**

Types of Rent

Q1

What is the Base Rent?

Answer

Q2

What is the "Additional Rent"?

Answer

Q3

What is "Free Rent"?

Answer

Q4

Does "Free Rent" apply to "Additional Rent"?

Answer

Q5

Explain "Percentage Rent"

Answer**END OF SET**

How to define & measure space

Q1

What are the Rentable Area and the Gross Leasable Area (GLA)?

Answer

Q2

How do you calculate the rentable area in an office building?

Answer

Q3

Calculate the Base Rent per month for an office building using the following information:

Base Rent: \$30 per Sq. Ft per Yr. based on the "Rentable Area"

Usable Area: 10,000 Sq. Ft. This is the area occupied by the tenant.

Add on Factor: 13%

Answer

Q4

What are the BOMA standards?

Answer

Q5

What are the dangers associated with quoting rents as \$ per Sq. Ft per Yr. or Month?

Answer

Q6

What's the simple solution to the problems created by quoting rent as \$ per sq. Ft per Yr. or Month

Answer

END OF SET

Tips on how to read a lease

Q1

Why is it so important to read a lease very carefully?

Answer

Q2

When reading a lease, ask who pays what?

Recommendations

Q3

What is a Demolition Clause?

Answer

Q4

Tips for reading a lease

Recommendations

Read the lease several times. Leases are complex legal documents and need to be read carefully

Ask a question and go looking for the answer in the lease. Read with a purpose. Have a question in mind

Examples

Is there a "Demolition Clause?"

When is the next rent increase and how is it calculated?

What operating expenses does the tenant pay?

Q5

How are the renewal rates in a lease determined?

Also called "Rent Steps" or "Rent bumps"

Answer

END OF SET

Using Cap Rates. Issues & problems

Q1

Explain the Apparent Cap Rate versus the True Cap Rate

Answer

Q2

The impact of “urgent major repairs” on the purchase price. Example

The impact of “urgent major repairs” on the Sale Price

Sale Price: \$3,200,000 Net Operating Income: \$275,000 per year

$$\text{“Apparent Cap Rate”} = \frac{\$275,000 \times 100}{\$3,200,000} = 8.59\%$$

BUT... the buyer deducted \$425,000 because the roof had to be replaced, the elevator upgraded

Sale Price based on “Normal” building = \$3,200,000 + \$425,000 = \$3,625,000

$$\text{“True Cap Rate”} = \frac{\$275,000 \times 100}{\$3,625,000} = 7.59\%$$

Q3

Cap Rates can’t handle changing cash flows over time. Example.

The impact of the timing of a lease renewal on the cash flow and property value



The Cap Rate approach doesn’t work very well when the cash flows change over time.

Clearly Property A is worth more than Property B.

To evaluate these two cash flows we would use discounted cash flow analysis and calculate the Net Present Value (NPV) using the investor’s discount rate

END OF SET

Introduction to long term real estate investment analysis

Q1

What is long term real estate investment analysis?

Answer

Q2

Write down how to develop the cash flow before tax.

Answer

Q3

Show me an example of an operating cash flow Projection

	Year 1	Year 2	Year 3	Year 4	Year 5
CASH FLOW BEFORE TAX					
Potential Gross Income	499,200	516,900	535,320	553,506	573,372
Less: Vacancy & Credit Loss Allow.	14,256	14,751	15,266	15,772	16,326
Effective Gross Income	484,944	502,149	520,054	537,734	557,046
Operating Expenses	221,374	230,523	240,079	248,972	258,293
Net Operating Income	263,570	271,626	279,975	288,763	298,753
Less: Principal Payments	28,318	30,517	32,886	35,439	38,190
Interest payments	149,040	146,841	144,472	141,919	139,168
CASH FLOW BEFORE TAX	86,212	94,268	102,617	111,405	121,395

Q4

What's the advantage and disadvantage of using cash flow analysis over using the Cap Rate approach to determine the value?

Answer

Q5

How long of a time period do you use when developing the yearly cash flows?

Answer

It depends on the type of building

Rental Apartment Buildings:

Five years is sufficient. Maybe 10 years

Office, Industrial & Retail properties

Ten years

With commercial buildings with leases it is best to analyze over 10 years to take into account the impact of periodic increases in rent on the long term value.

As an example Tenant A's rent increases every 3 years based on 2.5% compounding per year.

END OF SET

Discounted Cash Flow Analysis (DCF)

Q1

Which would you rather have?

\$1,000,000 today or \$1,000,000 in 10 years' time?

Circle your selection

Q2

You are going to loan me \$10,000 and I'm offering you the following two repayment plans. The annual payment is at the end of each year.

Which would you prefer as the lender Plan A or Plan B?

From your perspective which is the less risky option? Plan A or Plan B?

Circle or tick your selection

<u>Year</u>	<u>Plan A</u>	<u>Plan B</u>
0	\$<10,000>	\$<10,000>
1	4,000	6,000
2	5,000	5,000
3	<u>6,000</u>	<u>4,000</u>
Total	\$ 15,000	\$ 15,000
Return (IRR)	_____%	_____%

Q3

What is the Internal Rate of Return (IRR)?

How do you calculate the Internal Rate of Return?

What is a “Net Cash Flow” report?

The Net Cash Flow report shows the cash flow from the time the property is acquired until it is sold and calculates the Internal Rate of Return (IRR)

Net Cash Flow (Before Tax)					
Parklane Place 40 Unit Apartment Building Rental Apartment Building Example					
Year	Investment	Financing		Operating Cash Flow (Before Tax)	Sale Proceeds (Before Tax)
		Borrow	Paid Back		
Year 1 Jan-Year 1 Dec	\$ (3,770,000)	\$ 2,000,000	-	\$ 86,212	-
Year 2 Jan-Year 2 Dec	-	-	-	94,268	-
Year 3 Jan-Year 3 Dec	-	-	-	102,617	-
Year 4 Jan-Year 4 Dec	-	-	-	111,405	-
Year 5 Jan-Year 5 Dec	(250,000)	-	-	121,395	-
Year 6 Jan-Year 6 Dec	Roof-	-	-	131,294	-
Year 7 Jan-Year 7 Dec	replacement	-	-	141,986	-
Year 8 Jan-Year 8 Dec	-	-	-	152,724	-
Year 9 Jan-Year 9 Dec	-	-	-	163,611	-
Year 10 Jan-Year 10 Dec	-	-	(1,594,349)	175,117	4,936,162
Total					\$ 2,602,443
Financial Returns (Before Tax) with Financing					
Internal Rate of Return (IRR)		10.61%			
Net Present Value (NPV) at 13.00%		(\$ 296,501)			

Need to drop the price by \$296,501 to get a 13% return (IRR)

END OF SET

Developing the Net Cash Flow**Q1** What are the building blocks of investment analysis?

Following are the steps involved in carrying out long term investment analysis

Q2

Developing the Net Cash flows. Example

You have a choice to invest in either Property A and B. Each property will generate the following net cash flows. Which one would provide you with the best overall financial return?

Property A because the Internal Rate of Return (IRR) is 11.62% compared to 10.88% for Property B

Net Cash Flow		
Year	Property A	Property B
0	\$<1,000,000>	\$<1,200,000> ← (Purchase Price - Mortgage = Equity)
1.	81,000	58,000 ← (Net Operating Income - Debt Service)
2.	83,000	60,000 (= Cash Flow before Tax)
3.	84,000	61,000
4.	87,000	67,000
5.	87,000	68,000
6.	89,000	69,000
7.	<10,000>	70,000
8.	90,000	112,000
9.	92,000	115,000
10.	93,000	117,000
11.	96,000	119,000
12	1,950,000	2,500,000 ← (Cash Flow Yr.12 + Sale Proceeds)
Return (IRR)	11.62% ✓	10.88% Internal Rate of Return (IRR)

END OF SET

The Impact of Financial Leverage**Q1.**

Briefly explain financial leverage to a client using an example.

Your answer

Q2.

Using the following information calculate the profit.

Mary buys 40 acres land of industrial land for \$1,000,000 paying cash. Two years later the property value has increased 10% and she sells it for \$1,100,000. Calculate her profit.

Bill buys 160 acres paying \$4,000,000 by borrowing \$3,000,000 from the bank and providing equity or cash of \$1,000,000.

In addition he pays \$50,000 of interest each year. Two years later the property value has increased 10% and he sells it for \$4,400,000. Calculate Bill's profit

Your answer

Q3

Using the following information calculate the investment loss.

Mary buys 40 acres of industrial land for \$1,000,000 paying cash. Two years later the property has decreased in value by 10% and she sells it for \$900,000. Calculate her loss.

Bill buys 160 acres paying \$4,000,000 by borrowing \$3,000,000 from the bank and providing equity or cash of \$1,000,000. In addition he pays \$50,000 of interest each year. Two years later the property has decreased in value by 10% and he sells it for \$3,600,000. Calculate his loss.

Your answer

Q4.

Write down the two financial measures that you can use to identify the risk associated with using financial leverage.

Your answer

Q5

How do we use the Debt Service Coverage Ratio (DSCR) and the Default Ratio (Breakeven point) to identify the financial risk associated with using financial leverage?

Your answer

Q6

An investor buying an office building is considering three financing options.

Based on the following which financing option generates the:

- 1) Highest Return on Investment (Internal Rate of Return)?
- 2) The most risk

	Debt Service Coverage Ratio	Debt Service Breakeven Point
Option A 50% financing	1.49	79%
Option B 60% financing	1.24	86%
Option C 70% financing	1.06	94%

Your answer

Q7

How does the financial leverage influence the Return on Investment (IRR)?

	Loan to Value Ratio	Debt Service Coverage Ratio	Default Ratio Breakeven Point	Internal Rate of Return (IRR)
Option A 50% financing	50%	1.49	79%	?
Option B 60% financing	60%	1.24	86%	?
Option C 70% financing	70%	1.06	94%	?

Your answer

Q8

Which is the more risky financing option?

	Loan to Value Ratio	Debt Service Coverage Ratio	Default Ratio Breakeven Point	Internal Rate of Return (IRR)
Option A 50% financing	50%	1.49	79%	13.32%
Option B 60% financing	60%	1.24	86%	14.61%
Option C 70% financing	70%	1.06	94%	16.19%

Your answer

	Loan to Value Ratio	Debt Service Coverage Ratio	Ratio Breakeven Point	Internal Rate of Return (IRR)
Option A 50% financing	50%	1.49	79%	13.32%
Option B 60% financing	60%	1.24	86%	14.61%
Option C 70% financing	70%	1.06	94%	16.19%

Q9

How does the use of financial leverage impact the cash flow before tax?

Your answer

The impact of financial leverage on the cash flow before tax

		Yearly Cash Flow before Tax				
	Financial Leverage	1	2	3	4	5
Option A	50% LTV	86,212	94,268	102,647	111,405	121,395
Option B	60% LTV	50,741	58,797	67,146	75,933	85,924
Option C	70% LTV	15,269	23,325	31,674	40,462	50,452

In year 1 the cash flow for Option A using a 50% LTV is \$86,212 which decreases to \$15,269 for Option C which uses a 70% LTV.

From a cash flow perspective Option A is less risky than Option C. For Option A the Net Operating Income has to drop by \$86,212 before a building starts to experience a negative cash flow.

For Option C using a 70% LTV if the Net Operating Income drops by more than \$15,269 the building will experience a negative cash flow. A small decrease in rents or increase in the vacancy rate or a small increase in the operating cost would quickly create a negative cash flow. A risky proposition.

END OF SET

The importance of professional engineering inspections

Q1

Why is it important for a buyer to engage a professional engineering firm to inspect a building?

Answer

Q2

What is concrete rot or cancer?

Answer

Q3

Post tension floor slab systems are widely used in concrete buildings.

- 1) Briefly describe the post tensioning system
 - 2) In older buildings there have been many cases of the failure of post tensioned floor system failing. What causes the failure?
-

Answer**END OF SET**

Valuing Income Properties with Development Potential

Q1.

Examples of income properties with development potential.

See the flip side

Your answer

The top two photos show existing income properties that are destined to be replaced with new developments like the two photos below.



Q2.

Example.

Properties with development potential.

Aging supermarkets

Your answer

A current trend in large cities where there is a shortage of land is to replace aging super markets with hi-rise condominium towers with retail space on the ground level.



Q3

What are the two ways to value an income property?

Your answer

Q4.

What does the "Land Residual" or the "Back Door" approach to valuing land mean?

Your answer

Q5

What are the steps involved in carrying out the Land Residual or Back Door approach to establishing land value?

Your answer

Q6

How can you quickly tell whether you should use the "Income" or the "Land Residual" approach to determine the value on an income property?

Your answer

Q7

A really old, somewhat run down three story office building situated on a large site in a highly desirable area is up for sale for \$5,000,000.

The zoning allows a 9 story building to be constructed on the site.

The Net Operating Income (NOI) is \$45,000 per year.

The market Cap Rates for newer office buildings is 5%.

Calculate the Cap Rate based on the existing buildings Net Operating Income (NOI) and the asking price.

The property tax assessment value was \$4,700,000

Should the property value be based using the Income Approach or the Land Residual approach?

Your answer

Q8

A extreme example of the value of an existing income property with development potential.

A property with a popular restaurant and the adjacent parking lot sold for \$245,000,000. Why?



Your answer

This is why



Q9

Not all sites have development potential. Why?

Your answer

Q10

TIP

Always check the potential for a site assembly by looking at the properties on each side and at the rear of the site if there is no alley.

See the example on the flip side.

Your answer

Example of a property with little development potential or site assembly potential.

It would be very costly to replace this old non-conforming building with a new condominium development which would require underground parking and deeper side yard and front yard setback. Significantly reducing the buildable area.



Q11**TIP**

Always check the potential for a site assembly by looking at the properties on each side and at the rear of the site if there is no alley.

See the example on the flip side.

Your answer

Any one of these three rental apartment buildings has good long term assembly potential by acquiring the adjacent building(s) creating a larger and more economical development.



END OF SET

CLASS QUIZ

Q1.

Using the following information calculate the Cap Rate

Net Operating Income (NOI): \$200,000 per year

Sale Price: \$4,000,000

Start by writing down the formula for calculating the Cap Rate

Answer

Q2.

Put an "X" against the expenses that should be removed from the Income & Expense Statement when using the Net Operating Income (NOI) and the Cap Rate to calculate the value of the property?

.

Insurance

Property taxes

Upgrading the elevator

Elevator service contract

Landscaping service contract

Mortgage Interest costs

Security services

Painting 40% of the building exterior

Property management

Q3

Calculate the Return on Equity (ROE) or Cash on Cash Return using the following information.

Net Operating Income (NOI): \$125,000 per year

Debt Service: \$75,000 per year

Purchase Price: \$1,700,000?

Mortgage: \$1,000,000

Start by writing down the formula

Answer:

Q4.

From a **BUYERS** perspective which do they prefer?

A higher or a lower Cap Rate?

Circle your selection

Q5.

Using the following information calculate the:

- 1) Loan to Value Ratio(LTV)
- 2) Debt Service Coverage Ratio (DSCR)

Purchase Price: \$2,500,000

First Mortgage: \$1,500,000

Net Operating Income (NOI): \$130,000 per Yr.

Debt Service: \$100,000 per Yr. Annual (P +I) payment

Start by writing down the formulas

Answer

Q6.

Calculate the Base Rent per Sq. Ft per Yr. for an office building using the following information:

Base Rent: \$200,000 per Yr. based on the "Rentable Area"

Usable Area: 9,000 Sq. Ft. This is the area occupied by the tenant.

Add on Factor or Gross up Factor: 15%

Answer

Q7.

The lower the Cap Rate the "**higher**" or "**lower**" the property value?

Circle your selection

Q8.

The Cap Rate is an excellent approach to valuing Property A which has the following lease arrangement. True or False?

Circle your selection



Q9.

A tenant is entering into a Triple Net Rent (NNN) and the landlord has offered the tenant three months free rent.

The tenant interprets this to mean that during the Free Rent period of three months that there are no payments made to the landlord.

Based on the typical arrangements for free rent is the tenant's assumption correct?

Yes or No

Circle your answer

Q10

When calculating the Cap Rate for a commercial building leasing fees should be excluded from the Income & Expenses statement when using the Cap Rate to determine the value.

True or False?

Circle your answer

Q11

You are considering buying a building which has a Net Operating Income (NOI) of \$230,000.

If you wish to buy the property for a 6.00% Cap Rate, how much would you pay for the property?

Q12

The Loan to Value Ratio (LTV):

- a) ☐ Always determines the loan amount
- b) ☐ Determines the maximum loan subject to the Debt Service or Coverage Ratio
- c) ☐ Is never used by a commercial lender because they always use the Debt Service or Coverage Ratio to determine the loan amount to determine the loan amount

Tick your answer

Q13

Which Debt Service Coverage Ratio provides the highest loan amount?

- a) 1.19
- b) 1.25
- c) 1.30

Tick the correct answer a) ☐ b) ☐ c) ☐

Q14

Which Debt Service Coverage Ratio potentially indicates the highest financial risk?

- a) 1.31
- b) 1.07
- c) 1.15
- d) 1.20

Tick the correct answer a) ☐ b) ☐ c) ☐ d) ☐

Q15

A "Triple Net (NNN)" lease means that the tenant pays all of the landlords operating expenses.

True False

Circle your answer

Q16

In a multi-tenant office building the landlord usually calculates the rent based on the Usable Area because this is the area occupied by the tenant.

True False

Circle your answer

Q17

How much would you pay for \$130,000 per year forever if wanted a 10% return?

- a) __ \$1,300,000
- b) __ \$130,000
- c) __ \$13,000,000
- d) __ None of these
- e) __ \$13,000

Tick the correct answer

Q18

Which would you rather have?

- a) Receive \$750,000 today
- b) Receive \$750,000 in 5 years time

Tick the correct answer a)__ b)__

Q19

The diagram below shows the projected lease rates and renewals for two comparable properties. Which is the most valuable property?

- a) Property A
- b) Property B

Tick the correct answer a)__ b)__



Q20

From a financial perspective which investment provides the highest:

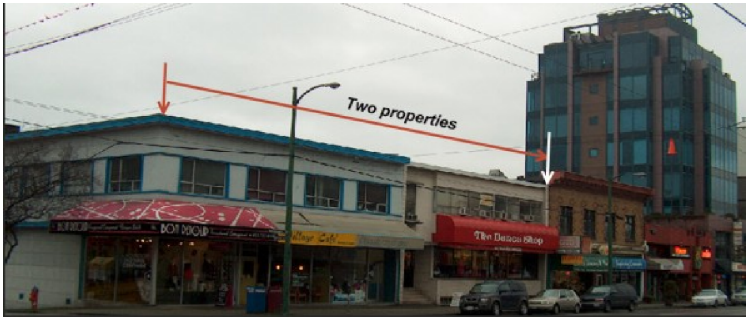
- 1) Return (IRR)
- Investment A or Investment B
- 2) Risk
- Investment A or Investment B

Circle your answers

Year	Investment A	Investment B
0	<960,000>	<960,000>
1	230,000	320,000
2	250,000	300,000
3	275,000	290,000
4	290,000	275,000
5	300,000	250,000
6	320,000	230,000
Total	\$ 1,665,000	\$ 1,665,000

Q21

How would you value this property?



- a) Use the income approach such as the Cap Rate or Discounted Cash Flow Analysis approach
- b) Use the "Development Analysis" or "Land Residual" approach

Tick the correct answer a)___ b)___