

HRC

The High-Risers Club

1.28.2025 – The Math You Need to Know, Simplified

Coach Jeff Wright

Welcome

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Does anyone have anything great to share personally or professionally?



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Greatness is Within



You Can Do This

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The Math You Need to Know, Simplified

Market Value

This method is based on the IRV formula: converting a one-year stabilized net operating income (NOI) into the market value of the property. If the property is not yet built or fully occupied (has not reached its full potential NOI), the appraiser will put together a value they feel reflects the true marketplace.

$$\frac{\text{One-Year Stabilized NOI}}{\text{Capitalization Rate (Cap Rate)}} = \text{Market Value}$$

Example: Given the follow scenario, what is the market value of the property?

I = One-year stabilized NOI	=	\$54,630
R = Capitalization Rate (Cap Rate)	=	12.14%
V = Market value	=	?

$$\frac{\$54,630}{0.1214} = \$450,000$$

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Cap Rate (Capitalization Rate)

The capitalization rate is the rate of return on a real estate investment property based on the income that the property is expected to generate. Cap rate is determined by the following formula:

$$\frac{\text{Net Operating Income}}{\text{Sales Price (Value)}} = \text{Cap Rate}$$

Example: Property A has a net operating income (NOI) of \$216,000 and a sales price of \$2,700,000. Property B has an NOI of \$220,000 and a sales price of \$2,275,000. What are the indicated cap rates and how do they compare?

PROPERTY A:

$$\frac{\$216,000}{\$2,700,000} = 8\%$$

PROPERTY B:

$$\frac{\$220,000}{\$2,275,000} = 9.67\%$$

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Net Operating Income (NOI)

NOI is the income available to pay the mortgage (debt service) after all operating expenses have been paid.

If the value of the property is known along with the capitalization rate, the cap rate formula can be reconfigured to solve for the NOI.

$$\text{Value} \times \text{Capitalization Rate} = \text{Net Operating Income}$$

Example: If the value of the property is \$2,700,000 and the capitalization rate is 8%, then what is the NOI of the property?

$$\$2,700,000 \times 0.08 = \mathbf{\$216,000}$$

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	Rental Income
<i>Plus</i>	Other Income
<hr/>	
<i>Equals</i>	Total Income
	Total Income
<i>Minus</i>	Vacancy and Credit Losses
<hr/>	
<i>Equals</i>	Effective Gross Income
	Effective Gross Income
<i>Minus</i>	Operating Expenses + Reserves
<hr/>	
<i>Equals</i>	Net Operating Income

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Measuring Investment Value ($I \div R = V$)

Question - What should an investor who is looking for a minimum cap rate of 8% be willing to pay for a building that has an NOI of \$228,000?

Answer:

\$2,850,000

$$V = \$228,000 \div 8\%$$

$$V = \$2,850,000$$

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Measuring Investment Performance Using Direct Capitalization ($I \div V = R$)

Question – What is the cap rate of a building being offered for sale at \$2,850,000 with an NOI of \$228,000?

Answer:

8%

$$R = \$228,000 \div \$2,850,000$$

$$R = .08 \text{ or } 8\% \text{ cap rate}$$

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Determining Net Operating Income: ($R \times V = I$)

Question – What is the NOI for a building in which the listing notes a price of \$2,850,000 and a cap rate of 8%?

Answer:

\$228,000

$$I = 8\% \times \$2,850,000$$

$$I = \$228,000$$

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Determining Value Using the Income Capitalization Approach

Question – What is the Net Operating Income of a building with the following data:

■ Rental Income	\$525,031	
■ Other Income	\$ 0	
■ Vacancy and Credit Losses	\$ 26,252	
■ Operating Expenses	\$265,100	
■ Reserves	\$ 9,319	(\$0.30/SF x 31,063 SF)
■ Cap Rate	8%	

Answer –

Net Operating Income Formula		
	Rental Income	\$525,031
Plus	Other Income	+ \$ 0
<hr/>		
Equals	Potential Gross Income	- \$525,031
<hr/>		
	Potential Gross Income	\$525,031
Minus	Vacancy and Credit Losses	- \$ 26,252
<hr/>		
Equals	Effective Gross Income	- \$498,779
<hr/>		
	Effective Gross Income	\$498,779
Minus	Operating Expenses + Reserves	- \$274,419
<hr/>		
Equals	Net Operating Income	\$224,360

What is the market value for this building? Assume a cap rate of 8%.

$$\$224,360 \text{ (NOI)} \div 8\% \text{ (cap rate)} = V$$

$$\$224,360 \div 8\% = \$2,804,500 \text{ Market Value}$$

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Loan-to-Value (LTV) Ratio

The loan-to-value (LTV) calculation is used to determine the percentage of the loan borrowed in relation to the purchase price or value of a property. The loan amount is divided by the sale price or appraised value, whichever is less.

$$\frac{\text{Loan Amount}}{\text{Sales Price}} = \text{Loan-to-Value Ratio}$$

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Debt Service Coverage Ratio (DSCR)

DSCR is one of the underwriting standards a commercial lender uses to determine if they will offer a purchaser financing. Different types of real estate have different minimum debt service coverage ratio standards.

Lenders use the DSCR ratio as a metric to determine a borrower's ability to repay their debt obligation. A DSCR less than 1.0x indicates that the property might experience zero or negative cash flow. Lenders typically use 1.25-1.30x.

$$\frac{\text{Net Operating Income}}{\text{Annual Debt Service}} = \text{Debt Service Coverage Ratio}$$

Step 1:		Calculate NOI
Number of Units		12
Monthly Rent	x	<u>\$1,600</u>
Annual Rent	=	\$230,400 (12 x \$1,600 x 12)
Vacancy & Credit Loss (5%)	x	<u>(\$11,520)</u>
Gross Potential Income	=	\$218,880
Operating Expenses	-	<u>(\$33,900)</u>
Net Operating Income	=	\$184,980

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$$\frac{\text{Net Operating Income}}{\text{Annual Debt Service}} = \text{Debt Service Coverage Ratio}$$

Step 2:		Calculate Annual Debt Service (ADS)
Property Value		\$2,312,250
Loan Amount		\$1,734,188 (75% LTV)
Amortization		25
Interest		6%
Monthly Debt Payments		\$11,173
Annual Debt Payments		\$134,076

Step 3:		Calculate Debt Service Coverage Ratio (DSCR)
Net Operating Income		\$184,980
Annual Debt Service	÷	<u>\$134,076</u>
Debt Service Coverage	=	1.38x



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Rentable Square Feet

The amount of square footage on which the tenant pays rent. The rent is based on the usable area plus a portion of the building's shared space, to include common areas such as lobbies, restrooms and hallways.

$$\begin{array}{r} \text{Usable Square Footage (USF)} \\ + \text{Allocated Portion of Common Areas} \\ \hline = \text{Rentable Square Footage} \end{array}$$

Example: If a property has a usable square footage of 42,000 square feet and has 6,000 square feet of common area. If a tenant occupies 20,000 square feet of the usable square footage, what is the rentable square footage on the property?

Tenant Occupied Square Footage	20,000
÷ Usable Square Footage (USF)	42,000
= Pro-Rata Share of the Building	47.62%
x Common Area	6,000
= Pro-Rata Share of the Common Area	2,857 SF
Tenant Occupied Square Footage	20,000
+ Pro-Rata Share of the Common Area	2,857
Rentable Square Feet	22,857 SF

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Lease Rate per Square Foot

The lease rate per square foot is the cost to occupy a leased space on a per square foot basis. This figure is represented as the dollar amount per square foot per year.

$$\frac{\text{Annual Lease Rent}}{\text{Square Footage}} = \text{Lease Rate per Square Foot}$$

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Operating Expenses

Costs the owner pays to operate and maintain a building. These expenses include property taxes, insurance, utilities, maintenance, repairs, management, legal and accounting services. It does not include mortgage payments (debt service), cost recovery or capital expenditures.

Operating expenses recur annually.

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Management Fee

Fee paid to a management company to conduct daily oversight of the property and take responsibility for repairs, maintenance, security and upkeep.

The fee is usually 3-5% of the EGI of the property.

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Next Session

**Tuesday, February 4, 2025
@ Noon Eastern**

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