ESTIMATING PROPERTY VALUE

USING MORTGAGE-EQUITY ANALYSIS

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IN THIS SESSION:

- General Valuation Model: $V = I / R$
- Overall Property Value: $V_O = I_O / R_O$
- Overall Property Value; $V_O = V_M + V_E$
- Mortgage Value: $V_M = I_M / R_M$
- Equity Value: $V_E = I_E / R_E$

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ESTIMATING PROPERTY VALUE BASED ON ITS CAPITAL COMPONENTS

- The property can be divided into Mortgage Loan Value and Equity Value
- Lenders underwrite a Mortgage Loan using three criteria:
  1. Debt Coverage Ratio

$$Debt\ Coverage\ Ratio\ (DCR) = \frac{Net\ Operating\ Income\ (I_0)}{Annual\ Mortgage\ Payments\ (Im)}$$

  2. Loan – to – Value Ratio
  3. Borrower Character

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ESTIMATING PROPERTY VALUE BASED ON ITS CAPITAL COMPONENTS

- With a given Debt Coverage Ratio, the Annual Debt Payment (I_m) is determined by dividing the Net Operating Income (I_0) by the required DCR.

$$Annual\ Debt\ Payment(Im) = \frac{I_0}{DCR}$$

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ESTIMATING MORTGAGE LOAN VALUE

SPECIAL SKILLS

ESTIMATING MORTGAGE LOAN VALUE

- The Mortgage Loan Value (V_m) is calculated by dividing the Annual Debt Payment (I_m) by the Annual Mortgage Constant (R_m)

$$V_m = \frac{I_m}{R_m}$$

- The Annual Mortgage Constant (R_m) is equal to the periodic mortgage payment times the payments per year.
- The Period Mortgage Constant (mc) is equal to the periodic interest rate plus a sinking fund factor based on the interest rate and the amortization term:

$$R_m = (mc) \times (Payments\ per\ Year)$$

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ESTIMATING MORTGAGE LOAN VALUE (VM)

- How much money can the Developer borrow?

	Net Operating Income (I_0)
÷	Debt Coverage Ratio (DCR)
=	Annual Debt Payment (I_m)
÷	Annual Mortgage Constant (R_m)
=	Mortgage Value (V_m)

*Based on 6% annual interest, 30 year amortization term, with monthly payments (.006)x(12)=.071946

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ESTIMATING MORTGAGE LOAN VALUE (VM)

- How much money can the Developer borrow?

	Estimating Mortgage Value (V_M): International Plaza Example	
	Net Operating Income (I_0)	4,554,680
÷	Debt Coverage Ratio (DCR)	1.3
=	Annual Debt Payment (I_m)	3,503,600
÷	Annual Mortgage Constant (R_m)	.071946*
=	Mortgage Value (V_m)	48,697,592

*Based on 6% annual interest, 30 year amortization term, with monthly payments (.006)x(12)=.071946

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ESTIMATING EQUITY VALUE

SPECIAL SKILLS

EQUITY VALUE (V_E) = AFTER FINANCING CASH FLOW (I_E) / EQUITY DIVIDEND RATE (R_E)

THE EQUITY DIVIDEND RATE IS ALSO KNOWN AS THE LEVERAGED CASH-ON-CASH RETURN

ESTIMATING EQUITY VALUE (VE)

- The Equity Value (V_E) is calculated by dividing the After Financing Cash Flow (I_E) by the Equity Dividend Rate (R_E).

- $$V_E = \frac{I_E}{R_E}$$

- The Equity Dividend Rate is commonly referred to as the "Required Levered Cash-on-Cash Return".

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ESTIMATING EQUITY VALUE (VE)

	Estimating Equity Value (V_E): International Plaza Example	
	Net Operating Income (I_O)	4,554,680
-	Annual Mortgage Payment (I_M)	(3,503,600)
=	Annual Cash Flow (I_E)	1,051,080
÷	Equity Dividend Rate (R_E)	.05
=	Equity Value (V_E)	21,021,600

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ESTIMATING PROPERTY VALUE (V_O)

	Mortgage Value (V_m)
+	Equity Value (V_E)
=	Property Value (V_0)

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ESTIMATING PROPERTY VALUE (VO)

	Estimating Property Value (V_O): International Plaza Example	
	Mortgage Value (V_m)	48,697,592
+	Equity Value (V_E)	21,021,600
=	Property Value (V_0)	69,719,192

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ESTIMATING RETURN AFTER FINANCING

SPECIAL SKILLS

ESTIMATING RETURN AFTER FINANCING CASH FLOWS

- What if the Sales price is 75,000,000?
- What is the Leveraged Cash-on-Cash Return?

	Sales Price	75,000,000
-	Mortgage Value (V_m)	48,697,592
=	Required Equity	26,302,408
	Annual Cash Flow (I_E)	1,051,080
÷	Required Equity	26,302,408
=	Levered Cash-on-Cash Return	.03996

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ESTIMATING RETURN AFTER FINANCING CASH FLOWS

- If the Equity Dividend Rate (RE) is .05, do you buy?

	Sales Price	75,000,000
-	Mortgage Value (V_m)	48,697,592
=	Required Equity	26,302,408
	Annual Cash Flow (I_E)	1,051,080
÷	Required Equity	26,302,408
=	Leveraged Cash-on-Cash Return	.03996

NO

*Decision Rule: If the cash–on-cash return is less than the required Equity Dividend Rate (RE), then don't buy!

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