

**RE 618 / Fin 618 – Real Estate Investment Analysis**

## Homework – After-Tax Investment Analysis

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- 1) You are considering investing in an apartment property with 420 units that rent for an average of \$750 per month. The current market vacancy rate for similar apartment is 7 percent, and the appropriate operating expense ratio is 45 percent. The asking price for the building is \$26 million, but you believe you can negotiate the price down to \$24 million. You expect to incur closing costs of \$400,000 ~~the purchase price~~ in order to acquire this property.

The property tax assessor currently estimates that 20 percent of the property's value is attributable to the land. You also have a recent private appraisal that valued the property at \$26 million, \$4 million of which was attributable to the land.

You expect that rents will increase at roughly 5 percent per year, while operating expenses will increase at roughly the same rate as overall inflation (expected to be 3 percent per year for the foreseeable future).

Financing is available with a 10-year balloon loan amortized over 20 years at 8.50 percent interest with monthly payments. The lender's maximum LTV ratio is 70 percent and its minimum DCR is 1.30. The lender will charge 2.5 points in conjunction with this loan.

If you purchase this property, you will put it into service on January 1 of next year and will hold it for 5 years (until December 31 of the fifth year). At the end of your holding period, you expect that you will be able to sell it at a cap rate of 9.00 percent; you will incur selling costs of 5 percent of the selling price.

Your current marginal tax rate is 35 percent. Capital gains will be taxed at 15 percent, while depreciation recapture will be taxed at 25 percent.

- a) Assume you have other passive income against which you can offset any losses associated with this investment.
- Calculate the before- and after-tax cash flows associated with operating this property. (Calculate for each year of your holding period.)
  - Calculate the before- and after-tax equity reversion you expect to receive from this property.
  - Calculate the before- and after-tax NPV and IRR of this property, assuming a 12 percent required rate of return. Based on your analysis, is this property a good investment at a \$24 million purchase price?
- b) Redo all of the analysis from part (a) assuming that you do *not* have any other passive income against which to offset losses. How does this affect your investment return measures?

1st Year Pro Forma

PGI = $420 \times 750 \times 12$	3,780,000
- V+C @ 7%	<u>264,600</u>
EGI	3,515,400
- DE @ 45%	<u>1,581,930</u>
NOI	1,933,470
- ADS	<u>1,487,285</u>
BTCF	<u>446,185</u>
- Taxes	<u>(8,668)</u>
ATCF	454,853

<u>Year</u>	<u>CF</u>
0	(10,475,289)
1	454,853
2	540,411
3	619,030
4	701,849
5	778,114 + 14,014,616
	= 14,792,730

$$NPV @ 12\% = (357,915)$$

$$IRR = 11.2\% \quad \text{Don't invest.}$$

Loan Calculations

$$\text{LTV-based Loan: } 24,000,000 \times 0.7 \\ = 16,800,000$$

DCR-based Loan amount:

$$\text{max ADS} = \frac{\text{NOT}}{\text{min DCR}} = \frac{1,933,470}{1.3} \\ = 1,487,285 \\ \div 12$$

$$\text{max PMT} = 123,940 = \text{PMT}$$

$$N = 20 \times 12 = 240, P/Y = 12, I = 8.5\%$$

$$FV = 0 \Rightarrow PV = \text{Max Loan}$$

$$= -14,281,755$$

Pick the smaller loan amount,

$$\text{So Loan} = 14,281,755$$

$$\Rightarrow \text{PMT} = -123,940$$

$$\text{ADS} = 1,487,285$$

$$N = 5 \times 12 = 60 \Rightarrow FV = 12,586.108$$

<u>P1</u>	<u>P2</u>	<u>Σ Int</u>
1	12	1,203,045
13	24	1,177,921
25	36	1,150,576
37	48	1,120,814
49	60	1,088,421

<u>Tax world - Year 1</u>		<u>b</u>
NOI	1,933,470	
- Dep	719,487	
- Amort.	35,704	
- Int	<u>1,203,045</u>	
Tax. Inc	(24,766)	
x Tax Rate	<u>35%</u>	
Taxes from Op.	(8,668)	- 0 -

## Depreciation Calcs

$$\text{Initial basis: } 24,000,000 + 400,000 \\ = 24,400,000$$

$$\text{Appraisal: } \frac{22}{26} = 84.62\% \text{ in Bldg.}$$

$$\text{Tax Assessor: } 80\% \text{ in Bldg.}$$

$$\Rightarrow \text{Dep. Basis} = 24,400,000 \times 0.8462 \\ = 20,646,154$$

$$\div \frac{27.5}{\text{Annual Dep. } \$750,769} \\ \times \frac{11.5}{12}$$

$$1^{\text{st}} + \text{Last year Dep. } 719,487$$

Total dep. claimed =

$$719,487 \times 2 + 750,769 \times 3 \\ = 3,691,282$$

Adj. Basis @ sale

$$= 24,400,000 - 3,691,282 \\ = 20,708,719$$

Amort. Calcs

$$\begin{array}{r} \text{Loan amount} \quad 14,281,755 \\ \times \text{Points} \quad \underline{0.025} \\ \hline \text{Loan Fees} \quad 357,044 \end{array}$$

$$\text{Annual Amort:} \quad 35,704$$

At the end of the H.P.

$$\text{unclaimed Amort} = 357,044$$

$$- 5 \times 35,704$$

$$= 178,522$$

Up-Front CFs

Purchase price	24,000,000
+ Acquisition costs	400,000
- Mtg. Loan Received	14,281,755
<u>+ Loan Fees</u>	<u>357,044</u>
Total Cash Invested.	10,475,289

Sale Calcs

Sale Price = $2,652,750 \div 9\%$	= 29,474,999
<u>- 5% costs of sale</u>	<u>1,473,750</u>
Net Sale Price	28,001,249
<u>- Mtg. Balance</u>	<u>12,586,108</u>
BTER	15,415,141
<u>- Taxes from Sale</u>	<u>1,400,525</u>
ATER	14,014,616

## Taxes @ Sale

Net Sale Price	28,000,249
- <u>Adj. Basis</u>	<u>20,708,719</u>
Total Gain	7,292,530
S.L. Dep.	3,691,281 @ 25%
⇒ Gain from app.	3,601,249 @ 15%
Dep Recapture Tax	922,820
Cap. Gains tax	540,187
Unclaimed Amort.	(62,483)
178,522 @ 35%	
<u>Total Tax from Sale</u>	<u>1,400,525</u>