

RE618-RiskMT #2

max 100  
min 65  
mean 88.3  
Std. dev 12.5  
GPA: 3.05

A 18  
A<sup>-</sup> 0  
B<sup>+</sup> 4  
B 3  
B<sup>-</sup> 1  
C<sup>+</sup> 2  
C 1  
C<sup>-</sup> 1  
D<sup>+</sup> 2  
D 5

## 1) Defining Risk

a) What is risk? It is the possibility that actual CFs will differ from projected CFs.

- NOI (Rents, OE, V+C)
- Sale prices

b) Investors must be compensated for bearing risk.

- Risk averse investors.

High risk  $\Rightarrow$  high required return.

Q: How high?

c) Sources of Risk.

- Business Risk

- Economic conditions that affect rents, vac., OE, sale prices, etc.
- can be affected by prop. type or location.

- Financial risk (leverage)

- Liquidity risk

- Interest rate risk

- Inflation risk

- Legislative / Political risk

- Environmental conditions

## d) Risk Management Strategies

- Due Diligence

- Property inspections

- Rent roll analysis

- Lease agreement review

- Estoppel letters from tenants

- Maintenance records

- Title records

- Property survey

- Compliance w/ Govt. regs.

- Environmental value assessments

- Market research

- Choice of investment types + location

- Shift risk to tenants

- Limited liability ownership

- Diversification

- Managerial Expertise

## 2) Measuring Risk

### a) Sensitivity analysis

- Build your property/investment analysis in a spreadsheet in which you can change your assumptions.
- By how much does the NPV or IRR change when I adjust an input such as rent growth or V+C allowances.
- Allows you to focus your energy on the inputs that matter most.

### b) Scenario Analysis

- Change multiple inputs at the same time based on some larger scenario.
  - Best case
  - Most likely
  - Worst case

HW #9

$$a) \quad r_p = 6.5\% + 4.0\% = 10.5\%$$

$$b) \quad r_p = \frac{8.25\%}{R} + (2.50 - 1.00) = 9.75\%$$

$$c) \quad r_e = \frac{10.5 - 0.67 \cdot 8.5\%}{0.33} = 14.56\%$$

$$r_e = \frac{9.75\% - 0.67 \times 8.5\%}{0.33} = 12.28\%$$

$$d) \quad \text{Avg} = 13.42 \approx 13.5\%$$

How do you Discount After-tax CFs?

NOTE:  $r_e^{AT} \neq (1-t)r_e$

AT discount rate will be lower than  $r_e$ , but how much lower?

A Method - Assume that investment value and market value are equal

- Begin by estimating  $r_p$  and  $r_e$  as above
- Use this to estimate the market value of the property.
- Determine the up-front investment you must make if you paid the mkt value.
- Using this initial investment, calculate the AT IRR on the equity investment.

Use this AT IRR as your required return in your analysis.