REI 432 - Real Estate Finance
Fall 2008
Dr. Kimberly Goodwin
Homework #4 - Due in class on Monday, November 24

Show all your work in solving the problems. You don't need to provide formulas but do need to show all calculator keystrokes to get full credit for your answers.

1. An office building generates the cash flows listed below. The owner is considering spending $100,000 to renovate the building. The renovations will change the cash flows as listed below. Calculate the after tax internal rate of return on the renovations where the owner plans to sell the building in 3 more years. Should the owner renovate the property? Show all your work.

No renovations

	Year		
	1	2	3
NOI	60,000	61,800	63,654
Less debt service	44,671	44,671	44,671
BTCF	15,329	17,129	18,983
NOI	60,000	61,800	63,654
Less interest	23,575	21,824	19,923
Depreciation	16,542	16,542	16,542
Taxable income	19,883	23,434	27,189
Tax	5,567	6,562	7,613
ATCF	9,762	10,567	11,370
ATCF from sale			174,291

With renovations

	Year		
	1	2	3
NOI	70,000	72,100	74,263
Less debt service	44,671	44,671	44,671
BTCF	25,329	27,429	29,592
NOI	70,000	72,100	74,263
Less interest	23,575	21,824	19,923
Depreciation	16,542	16,542	16,542
Taxable income	29,883	33,734	37,798
Tax	8,367	9,446	10,583
ATCF	16,962	17,983	19,009
ATCF from sale			266,291

2. After tax cash flow from operations of an office building is expected to be $9,412 this year and $9,898 next year. After tax cash flow from sale of the property is expected to be $122,405 if sold this year and $131,465 if sold next year. What is the marginal rate of return for holding the property another year?

3. Use the information from problem 1 for the property without renovations.
    a. Find the BTIRR and ATIRR if the owner has an equity investment of $142,753. The mortgage balance at the end of year 3 is $493,451. The tax rate is 28%. The property is expected to sell for $700,000 and has an original cost basis of $650,000.
    b. Find the unlevered BTIRR and ATIRR (assume no debt and an equity investment of $650,000).
    c. Computer the Break-even interest rate (BEIR).