## **CRE Proforma – Risk Analysis - Solution**

Change the Lease detail figures to those noted below. Check Figure – ATCF in Year 3 should be \$428,201.

Year/	1	2	3	4	5	6	7	8	9	10	11
Suite											
А	2	2	2	2	30	8	8	8	8	8	8
В	4	4	4	4	4	4	30	8	8	8	8
С	3	3	3	3	3	40	8	8	8	8	8
D	6	6	6	6	6	6	6	6	6	6	6

For all Suites use a 2.5% Cost Growth Rate. Change the size of Suite A and Suite B to 25000 sq.ft.

Suite A: \$18 Contract Rent, \$0 Expense Stop, 3% Rental Growth Rate.

Suite B: \$28 Contract Rent, \$7 Expense Stop, 0% Rental Growth Rate, \$33 Rental Rate starting year 7.

Suite C: \$15 Contract Rent, \$0 Expense Stop, 3% Rental Growth Rate, 4.5% Sales Growth Rate, 3% of Sales above \$3,000,000. Initial Sales estimated at \$4,500,000.

Suite D: \$30 Contract Rent, \$99 Expense Stop, 0% Rental Growth Rate, 15000 Misc. Income.

Use the following input assumptions

CRE Proforma		Purchased Real Estate
Input Data		
Going Out Cap Rate	8.0%	
Selling Expense	7.0%	
7- yr Building Improvement %	14%	
15-yr Land Improvements	500,000	
Purchase Price	15,000,000	
Acquisition Costs	45,000	
Land Value	2,500,000	
Marginal Tax Bracket	35.0%	
Depn Recapture Rate	35.0%	
Capital Gain Rate	15.0%	
Equity Hurdle Rate	15.0%	
Depreciation Period	39	
Mortgage LTV	65.0%	
Amort Term (Years)	25	
Maturity (Years)	10	
Rate	6.000%	
Points	2.00%	
Prepay Penalty (%)	0.00%	

## Fin 5433 Homework: Risk Analysis via Proforma

Note: In this homework use your proforma to implement a number of the risk analysis strategies of Chapter 13. You should probably save your base case proforma under a separate name so that as you make changes you can still recover your original base case. You need not turn in your proformas – just turn in the results.

- 1. Change a single assumption:
  - a. Plot the BTIRR and ATIRR v. Mortgage Rate for rates of 4 14%
  - b. Plot the BTIRR and ATIRR v. LTV from 0-95% LTV
  - c. Plot the Effective Tax Rate for LTV from 0-95%
- 2. Partition the IRR. For the base case scenario, partition the IRR as shown in the text and lecture.
  - a. Operations 46.56%, Sale 53.44%
- 3. Marginal rate of return. To illustrate how the rate of return can be dependent on how long our holding period is, compute the IRR as if you have a 5 year holding period? This is probably most easily accomplished by using NOI<sub>6</sub> to get the sales price, and then rework the sales portion of the proforma to correct the adjusted basis calculation, and the correct loan payoff. Compute the IRR's using the 5 year cash flow figures. Turn in the "Proforma" tab that shows these changes and the result. Is it better to plan to sell after 5 years than after 10 years? BTIRR falls from 15.3% to 11.5%, so better to wait.
- 4. Scenario Analysis simplified version. We will create a pessimistic and optimistic scenario to compare to our base case. We will make the following modifications. (Use 10 yr proforma). What are the BRIRR and ATIRR for the following scenarios?

	Pessimistic	Optimistic
GPI	90% of base	120% of base
Vacancy Losses	125% of base	50% of base
Mortgage Rate	7.50%	5.25%
LTV	50%	90%
Going Out Cap Rate	11%	7%
BTIRR	0.0%	49.5%
ATIRR	0.0%	39.6%

One way to effect the change on the first two items is to simply put the appropriate factor as a multiplier on line35 and 36. For the other changes, you simply need to input the appropriate figure into the proper input cell.





5-year proforma results.

CRE Proforma		Purchased Real Estate					
Input Data			Marginal Tax	Bracket	35.0%		Mor
							Amo
			Depn Recapt	ure Rate	35.0%		(Yea
Going Out Cap Rate	7.0%		Capital Gain	Rate	15.0%		Matu
Selling Expense	7.0%		Equity Hurdle Rate		15.0%		Rate
7- yr Building Improvement %	14%		Depreciation	Period	39		Poin
							Prep
15-yr Land Improvements	500,000						(%)
			Initial Long te	erm Bldg			Mor
Purchase Price	15,000,000		Basis		10,358,700		Amo
Acquisition Costs	45,000		Intial 7 yr Bld	la Racic	1 686 300		Mon
	43,000		Initial Land Ir	nprove	1,000,300		WIGH
Land Value	2,500,000		Basis		500,000		Balaı
	Summary of	Before Tax	Cash Flows b				
	0	1	2	3	4	5	
Operations		499,742	514,977	530,809	547,262	376,517	
Capital	-5,490,000					6,322,294	
Total CF	-5,490,000	499,742	514,977	530,809	547,262	6,698,811	
Before Tax IRR =	11.5%						
Before Tax NPV =	-673,637				Ratio Analysis		
Unlevered Return		8.33%	8.43%	8.54%	8.65%	7.51%	
Cash on Cash Return		9.10%	9.38%	9.67%	9.97%	6.86%	
Debt Coverage Ratio		1.66	1.68	1.70	1.73	1.50	
Vacancy Collection Loss		3.5%	3.5%	3.5%	3.5%	12.4%	
<b>Operating Expense Ratio</b>		34.9%	35.2%	35.4%	35.7%	39.6%	
Breakeven Occupancy		71.4%	71.1%	70.8%	70.4%	69.9%	

	Summary of	After Tax Ca				
	0	1	2	3	4	5
Operations		409,985	422,964	428,201	433,569	316,971
Capital	-5,490,000					5,590,225
Total CF	-5,490,000	409,985	422,964	428,201	433,569	5,907,196
After Tax IRR =	7.7%					
After Tax NPV =	-1,347,305		Effective Tax	< Rate =	33.1%	
	GPI Multiplier		1	Vacancy Mu	ltiplier	1
Cash Flow From Operations	0	1	2	3	4	5
Gross Potential Income		1,995,000	2,027,825	2,061,693	2,096,640	2,137,069
- Vacancy & Collection		70,175	70,984	71,819	72,682	265,785
= Effective Gross Income		1,924,825	1,956,841	1,989,874	2,023,958	1,871,285
- Operating Expense		671,250	688,031	705,232	722,863	740,934
= Net Operating Income		1,253,575	1,268,810	1,284,642	1,301,095	1,130,350
- Mortgage Payment		753,833	753,833	753,833	753,833	753,833

= Before Tax Cash Flow	499,742	514,977	530,809	547,262	376,517	
- Taxes		89,757	92,013	102,608	113,693	59,546
= After Tax Cash Flow	409,985	422,964	428,201	433,569	316,971	
Income Taxes From Operation	IS					
End of Year Loan Balance	9,750,000	9,576,446	9,392,188	9,196,565	8,988,877	8,768,378
NOI		1,253,575	1,268,810	1,284,642	1,301,095	1,130,350
+ Capital Reserves		120,000	123,000	126,075	129,227	132,458
- Interest Paid		580,279	569,574	558,210	546,144	533,334
- Amortized Finance Costs		19,500	19,500	19,500	19,500	19,500
- Amortized Leasing Costs						
- Depreciation (Building)		254,541	265,608	265,608	265,608	265,608
- Depreciation (Bldg Impr 7-yr)		230,863	240,900	240,900	240,900	240,900
- Depreciation (Land Impr 15-y	-)	31,944	33,333	33,333	33,333	33,333
= Taxable Income		256,449	262,894	293,166	324,837	170,132
Taxes Due		89,757	92,013	102,608	113,693	59,546

Cash flow From Resale	EOY 10	Gain on Sale	
Estimated Sales Price	16,226,529	Net Sales Price	15,090,672
- Sales Expense	1,135,857	- Adjusted Basis	12,999,048
= Net Sales Price	15,090,672	= Gain on Sale	2,091,624
- Mortgage Payoff = Before Tax Equity	8,768,378		
Reversion	6,322,294	Depreciation Recapture	2,091,624
- Taxes on Sale	732,069	Capital Gain	0
= After Tax Equity Reversion	5,590,225		
		Depreciation Recapture Tax	732,069
		Cap Gain Tax	0

Total Tax on Sale

732,069