

Midterm FINA 450/2 Section AA ~ FALL 2011 Professor J. Manwaring<sup>2</sup>

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 – 745 pm

**Read and follow instructions to avoid penalty (VA)**

YOU are concerned over a real estate transaction that you are currently evaluating. The details are as follow: ~

PROPERTY	NDG	KIRKLAND
Asking Price	\$700,000	\$720,000
Offer (accepted)	At 8% discount	At 10% premium

Financing Plan (FP)	FPA	FPB
Loan-to-Value Ratio	72%	80%
1 <sup>st</sup> Mortgage	65% of Loan @ 4.05%	70% of Loan @ 3.90%
2 <sup>nd</sup> Mortgage	Balance @ 4.55%	Balance @ 4.80%
Compounded	Semi-annually	Semi- annually
Payable	Annually	Annually
Processing fees	1.25% of Loan	1.45% of Loan
Cancel. penalty *	1.05% of M. Balance	0.75% of M. Balance
Term (years)	18	22

\* cancellation fees applicable if cancelled before 8 years

The property has 25,000 square feet of space for rent and the going rate is \$2.80 per square foot for the first 14,000 square feet; and at 10% premium per square foot for the remaining area. It is estimated to have a 12% vacancy and credit losses and the operating expenses (excluding depreciation) is approximately 35% of effective gross income.

The property consists of land which represent 32% of value and the balance represent building. The building belongs to Class 3 with a CCA rate of 4%, declining balance method, half year rule applies.

You plan to keep this property for 10 years with Financing Plan A (FPA); and for 12 years with Financing Plan B (FPB). The tax rate is 40% and 50% of the capital gains is taxed. Inflation is 2.65% per annum.

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745 pm**Read and follow instructions to avoid penalty (VA)****Question #1. see page 2 for details**

Assume No cash on hand (No COH); you stay for the entire term and you want Financing Plan B (FPB).

What is the Effective Cost of Borrowing (ECB) for NDG?

→ Answer 4.373088%

**Show work below AND use back of PREVIOUS page if you need more space**NO COH, ENTIRE TERM  
FPB (NDG)

$$\begin{aligned} \text{EAR}_1 &= 3.938025 \\ \text{EAR}_2 &= 4.8576 \end{aligned}$$

$$\begin{aligned} \text{loan} &= 700,000 \times .92 = 644,000 \\ \text{LVR} &= 80\% = 515,200 / .9855 = \boxed{522,780} \end{aligned}$$

$$\text{Processing} = 1.45\% \quad \boxed{7580}$$

$$\begin{aligned} \text{MPMT}_1 &= (PV_{22, 3.938025}) = (522,780 \cdot 70\%) = 365,946 \\ &= \boxed{25,173} \end{aligned}$$

$$\begin{aligned} \text{MPMT}_2 &= (PV_{22, 4.8576}) = (522,780 \cdot .3) = \\ &= \boxed{11,761} \end{aligned}$$

$$\text{MPMT Total} = 36,934$$

$$\begin{aligned} \text{ECB} &= (522,780 - 7580) = 36,934 (PV_{22, \text{ECB}}) \\ 515,200 &= 36,934 (PV_{22, \text{ECB}}) \\ \text{ECB} &= \boxed{4.373088} \end{aligned}$$

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745 pm**Read and follow instructions to avoid penalty (VA)****Question #2. see page 2 for details**

Assume Cash on Hand (COH), you sold the property as planned under Financing Plan A (FPA).

What is the ECB for Property KIRKLAND?

→ Answer: 4.462014%**Show work below and use back of PREVIOUS page if you need more space)**

COH, FPA, Kirkland

term = 10/18 yrs

Selling Price = 792,000

NR = 72%

loan =  $792k \cdot 72\% = 570,240$ Processing =  $1.25\% \cdot 570,240 = 7,128$ EAR  $M_1 = 4.091006$ EAR  $M_2 = 4.601756$ 

$$MPMT_1 = (PV_{18, 4.091006}) = 570,240 \cdot 65\% \\ = 29,496$$

$$MPMT_2 = (PV_{18, 4.601756}) = 199,584 \\ = 16,547$$

$$MPMT \text{ Total} = 46,043$$

$$MBal_{10} = (PV_{8, 4.091006}) (29,496) \\ = 197,845$$

$$MBal_{2(10)} = 16,547 (PV_{8, 4.601756}) \\ 108,690$$

$$MBal \text{ Total} = 306,535$$

$$ECB = 570,240 - 7,128 = 460,43 (PV_{10, ECB}) + 306,535 (PV_{10, ECB})$$

$$563,112 = 460,43 (PV_{10, ECB}) + 306,535 (PV_{10, ECB})$$

$$ECB = 4.462014$$

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745 pm**Read and follow instructions to avoid penalty (VA)****Question #3** see page 2 for details

Assume No COH, use Financing Plan A (FPA) and you sold the property as planned. What is the weighted average cost of capital (WACC) of Property NDG?

**Note:** Cost of debt (rd) = ECB; and the opportunity costs of your down payment equals ECB + plus 6.50% risk premium?

→ Answer 4.996980%

Show work below AND use back of PREVIOUS page if you need more space)

NO COH, FPA, NDG

EAR<sub>1</sub> = 4.091006

EAR<sub>2</sub> = 4.601756

Selling Price = 644,000

loan = 72% \* 644K = 463,680 / (1 - 0.0125) = 469,549

Processing = 1.25% \* 469,549 = 5,869

term = 10/18

M<sub>PMT,1</sub> = PV<sub>18, 4.091006</sub> = 305,207  
= 24,288

M<sub>PMT,2</sub> = PV<sub>18, 4.601756</sub> = 164,342  
= 13,625

M<sub>PMT</sub> Total = 37,913

M<sub>bal,10</sub> = 24,288 (PV<sub>8, 4.091006</sub>)  
= 162,912

M<sub>bal,10</sub> = 13,625 (PV<sub>8, 4.601756</sub>)  
= 89,497

Bal Total = 252,409

ECB = 469,549 - 5,869 = 379,13 (PV<sub>10, ECB</sub>) + 252,409 (PV<sub>10, ECB</sub>)

ECB = 41.462050

WACC = 4.462050 (1 - 0.4) (0.72) + (4.462050 + 6.50%) (0.28)  
1.9276056 + 3.069374

WACC = 4.996980

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745 pm**Read and follow instructions to avoid penalty (VA)****Question #4** see page 2 for details

What is the Gross Income Multiplier (GIM), Net Operating Income Multiplier (NIM) and Overall Capitalization Rate (OCR) for Property KIRKLAND?

Complete the table below for:

$B = 792,000$

$S = 720,000$

	Investor	Seller
<b>GIM</b> <small>value/NOI</small>	12.315x	11.196x
<b>NIM</b> <small>value/NOI</small>	18.947x	17.224x
<b>OCR</b> <small>NOI/value</small>	5.27790%	5.80569%

**Show work below AND use back of PREVIOUS page if you need more space**

$1.8 \times 14000 = 39200$   
 $8(1.1) \times 11000 = 33280$   
 $1/61 = 73,080$   
 $KL = (8770)$   
 $GI = 64310$   
 $E = (22509)$   
 $NI = 41801$

$\frac{792000}{64310} = 12.315x$

$\frac{792000}{41801} = 18.947x$

$\frac{41801}{792000} = 5.27790\%$

$\frac{720000}{64310} = 11.196x$

$\frac{720000}{41801} = 17.224x$

$\frac{41801}{720000} = 5.80569\%$

**Question #4b** see page 2 for details

Based on the expectations on GIM, NIM and OCR (see below) for the NDG property, was this transaction a Favorable (\$) or Unfavorable (\$) for the buyer.

Complete the following table:

Buyer's Expected	Favorable \$	Unfavorable \$
<b>GIM = 10.20 times</b>	11962	
<b>NIM = 15.20 times</b>		8625
<b>OCR = 6.25%</b>	24816	

**Show work below AND use back of PREVIOUS page if you need more space**

$GIM = 10.20 = \frac{x}{64310} = 655962 - 644000 = 11962$

$NIM = 15.20 = \frac{x}{41801} = 635375 - 644000 = -8625$

$OCR = 6.25\% = \frac{41801}{x} = 668816 - 644000 = 24816$

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745 pm**Read and follow instructions to avoid penalty (VA)****Question #5** see page 2 for details

What is the Cash Flows After Taxes (CFAT) for Year 1 and Year 2? Assume Cash on Hand and use Financing Plan B (FPB) for property KIRKLAND.

**Identify ANSWER below**

Use this table if you find it useful

	Year 1	Year 2
<b>NOI</b>	41801	42,909
<b>Depreciation</b>	(10771)	(21,112)
<b>EBIT</b>	31,030	21,797
<b>Interest</b>	(26,699)	25941
<b>EBT</b>	4331	(4144)
<b>Taxes</b>	(1732)	1658
<b>EAT</b>	2599	(2486)
<b>CCA</b>	10771	21,112
<b>Principle</b>	(18065)	(18,823)
<b>CFAT</b> → <b>Answer</b>	(4,695)	(197)

X 60%  
 ASSUME  
 49% get tax  
 break, apply  
 against other  
 properties

792K

X 633600

**Show work below AND use back of PREVIOUS page if you need more space)**

Bucc	CCA	Eucc
538,560	10771	527,789
527,789	21,112	

$$MPMT_1 = 443520 = PV_{22}, 3.938025 = 30,510$$

$$MPMT_2 = 190,080 = PV_{22}, 4.8576 = 14,254$$

	MPMT <sub>1</sub>	Int	Principle	E Bal
1	30510	17466	13044	430476
2	30510	16952	13558	

	MPMT <sub>2</sub>	Int	Principle	E Bal
1	14,254	9233	5021	185059
2	14254	8989	5265	

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745 pm**Read and follow instructions to avoid penalty (VA)****Question #6.**

Raphael purchased a property for \$800,000 and TD Bank financed it under the following terms: Assume No Cash on Hand. There is 1.40% processing fees based on loan amount; and 1.60% cancellation penalty based on outstanding mortgage balance, if mortgage is cancelled before 9 years into term.

- Down payment 30 percent
- Term 15 years  $\times 12 = 180$  MTH
- Payment mode MONTHLY
- Interest Rate 4.85% per annum, compounded semi-annually

**How much do you owe the bank after 120 payments?**

→ Answer \$236,042 ✓

~~\$239,817 If cancelled then~~

**Show work below AND use back of PREVIOUS page if you need more space**

NO COH

$$\text{LVR} = 70\% = 560,000$$

$$\text{loan} = 560,000 / (1 - 0.014) = 567,951$$

$$\text{Processing} = 7,951$$

$$\text{M Pmt} = 567,951 = \text{PV}_{180, .400142} = \boxed{4,433}$$

$$\text{Mbal}_{120} \quad 4,433 \text{ PV}_{60, .400142} = \boxed{236,042}$$

$$\text{Cancellation fee} = 236,042 \cdot 1.6\% = 3777$$

$$\text{EMR} = \left[ 1 + \frac{.0485}{2} \right]^{2/12} + 1 = .400142\%$$

near

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745 pm**Read and follow instructions to avoid penalty (VA)****Question #7**

You have been given the assignment to appraise a property. This property has 42,000 square feet (s.f.) of usable space on 70,000 square feet of land. Analysis of construction costs indicate a per square-foot cost of \$12.40 for the first 15,000 square feet of space; \$16.50 per square foot for the next 20,000 square feet, and \$22.00 per square foot for the balance. The property is thirty-five years old with an estimated economic life of eighty years. Changing neighborhood (location depreciation) characteristics have had a negative influence on the property of approximately 13% of building (construction) costs. An examination of similar lots indicate a land value of \$11.00 square foot.

What is the estimated market value of this property based on the Cost Approach?

→ Answer: \$1,059,775

Show work below AND use back of PREVIOUS page if you need more space

Building

Book value  $((12.4 \times 15K) + (16.5 \times 20K) + (7K \times 22))$

670,000

Less Physical depreciation  $(35/80 \times 670,000)$

(293,125)

Locational depreciation  $(13\% \times 670,000)$

(87,100)

Value of Building

289,775

Book Value of Land  $(70,000 \times 11)$

770,000

Value of Property

1,059,775



NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745 pm**Read and follow instructions to avoid penalty (VA)****Question #8**

A property has 22,000 square feet of rentable space at \$24 per square foot. You expect a vacancy and credit loss of 15% and operating expense (without CCA) is 32% of effective gross income. LVR = 75%, and down payment = \$275,000. Financing is at 5.15% per annum compounded semi-annually, payable annually. The processing fees is 1.45% of loan and the term is 25 years. The opportunity costs of your down payment is 5.55% above the effective cost of borrowing (ECB) of the loan. Tax rate is 40%. You have NO Cash on Hand.

*What is the value of this property based on the Net Income Approach?*

→ **Answer:** \$4,520,060

Show work below AND use back of previous page if you need more space

PGI 528,000  
VCL (79200)  
EGI 448,800  
OE (143,616)  
NOI 305,184

$$\text{LVR} = 75\% \quad \text{SP} = 1,100,000$$

$$\text{loan} = 825,000 / 1.0145 = 837,139$$

$$\text{Processing} = 12,139$$

$$\text{term} = 25$$

$$\text{EAR} = 5.216306$$

$$\text{M}_{\text{PMT}} = \text{PV}_{25, 5.216306} = 837139$$

$$= 60,691$$

$$\text{ECB} = 825,000 = 60691 (\text{PV}_{25, \text{ECB}})$$

$$\text{ECB} = 5.364269$$

$$\text{WACC} = 5.364269(.75) + (5.364269 + 5.55)(.25)$$

$$4.023202 + 2.728567$$

$$\text{WACC}_{\text{BT}} = 6.751769\%$$

$$\text{V}_{\text{NIA}} = \frac{305184}{.06751769} = 4,520,060$$

$$\text{V}_{\text{NIA}} = \frac{\text{NOI}_{\text{BT}}}{\text{WACC}_{\text{BT}}}$$

$$\frac{305000}{.0675} = 4,520,000$$

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745 pm**Read and follow instructions to avoid penalty (VA)****Question #9**

You obtained a mortgage 7 years ago for \$840,000 at 6.95% per annum compounded semi-annually, processing fees was 0.85% of loan, amortized over 20 years. Mortgage rates has dropped so that a 13-year loan can be obtained at 6.05% per annum, compounded semi-annually. Cancellation penalty is 1.75% of mortgage outstanding balance. There is a 1.40% processing fees on the new loan. If you switch, what is the ECB of the new loan? Assume you have No Cash on Hand.

**→ Answer: 6.686695%****Show work below AND use back of previous page if you need more space**Old

$$PV = \$840,000$$

$$n = 20$$

$$1/y = (1 + \frac{0.0695}{2})^2 - 1 \times 100 = 7.0707561$$

$$Pmt = \$79,727$$

$$Mbal \text{ at year } 7 = 79,727(PVA_{13, 7.0707561}) =$$

$$= \$663,664$$

$$+ \text{cancel fee} = \$11,614$$

New

$$loan = 663,664 + 11,614 = 675,278$$

$$P.F. = .014 \times 684,866 = 9,588 (1 - .0140)$$

$$PV = 684,866$$

$$n = 13$$

$$1/y = 6.141506$$

$$Pmt = \$78,004$$

$$PV = 684,866 - 11,614 - 9,588 = 663,664$$

$$Pmt = -78,004$$

$$n = 13$$

$$ECB = 6.686695\%$$

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 – 745 pm**Read and follow instructions to avoid penalty (VA)****Question #10**

On November 3<sup>rd</sup>, 2011 a potential buyer offered you \$1,200,000 for your property and you have the following information to evaluate the offer.

- Housing prices increasing at 3.25% per annum
- \$140 per square foot
- \$55,000 per year reduction for age
- Two-car garage valued at \$100,000 compared to \$65,000 for a one-car garage
- Corner property warrants a 20 percent premium
- Swimming pool worth approximately \$40,000 considered a good selling point in your neighborhood

	Your Property	The Comparable
<b>Selling Price</b>	<b>?</b>	<b>\$650,000</b>
<b>Sold (when)</b>	<b>Now</b>	<b>October 3<sup>rd</sup>, 2010</b>
<b>Location</b>	<b>corner</b>	<b>middle</b>
<b>Size (square feet)</b>	<b>10,800</b>	<b>9,800</b>
<b>Age (years)</b>	<b>8</b>	<b>12</b>
<b>Garage</b>	<b>two-car</b>	<b>one-car</b>
<b>Swimming pool</b>	<b>Yes</b>	<b>No</b>
<b>Financing</b>	<b>Conventional</b>	<b>Conventional</b>

Should you accept this offer? **CIRCLE → YES or NO**

What is the value of your home?.

→ Answer: \$1,237,885

Show work below AND use back of PREVIOUS page, if you need more space

Selling Price 650,000  
 Adjustments  
 Time  $(13/12 \cdot 3.25\% \times 650,000) = 22,885$   
 Location  $(650,000 \cdot 20\%) = 130,000$   
 Size  $(140 \cdot 1000) = 140,000$   
 Age  $(55K \cdot 4) = 220,000$   
 Garage  $(35K) = 35,000$   
 Pool = 40K  
 40,000  
 1,237,885

end

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745pm

**Read and follow instructions to avoid penalty (VB)**

YOU are concerned over a real estate transaction that you are currently evaluating. The details are as follow: ~

PROPERTY	KIRKLAND	NDG
	SP. \$644,000	SP. \$792,000
Asking Price	\$700,000	\$720,000
Offer (accepted)	At 8% discount	At 10% premium

Financing Plan (FP)	FPA	FPB
Loan-to-Value Ratio	72%	80%
1 <sup>st</sup> Mortgage	65% of Loan @ 4.05%	70% of Loan @ 3.90%
2 <sup>nd</sup> Mortgage	Balance @ 4.55%	Balance @ 4.80%
Compounded	Semi-annually	Semi-annually
Payable	Annually	Annually
Processing fees	1.25% of Loan	1.45% of Loan
Cancel. penalty *	1.05% of M. Balance	0.75% of M. Balance
Term (years)	18	22

\* cancellation fees applicable if cancelled before 8 years

The property has 25,000 square feet of space for rent and the going rate is \$2.80 per square foot for the first 14,000 square feet; and at 10% premium per square foot for the remaining area. It is estimated to have a 12% vacancy and credit losses and the operating expenses (excluding depreciation) is approximately 35% of effective gross income.

Building - 68% The property consists of land which represent 32% of value and the balance represent building. The building belongs to Class 3 with a CCA rate of 4%, declining balance method, half year rule applies.

You plan to keep this property for 10 years with Financing Plan A (FPA); and for 12 years with Financing Plan B (FPB). The tax rate is 40% and 50% of the capital gains is taxed. Inflation is 2.65% per annum.

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745pm

**Read and follow instructions to avoid penalty (VB)**

**Question #1. see page 2 for details**

Assume No cash on hand (No COH); you stay for the entire term and you want Financing Plan B (FPB).

What is the Effective Cost of Borrowing (ECB) for NDG?

→ Answer 4.372868%

Show work below AND use back of PREVIOUS page if you need more space

NO COH NDG Plan B entire term SP = 792,000

$$LVR = 0.8 \times 792,000 = 633,600 \quad \text{Loan} = \frac{633,600}{(1.00145)} = 642,922$$

$$\text{proceeding fee} = 642,922 \times 1.45\% = 9,322$$

1st Package ~~1st Package~~

$$\text{NPMT} = 30,958$$

$$\text{Loan} = 642,922 \times 0.7 = 450,045$$

$$N = 22 \quad i = 3.938025 \quad PV = -450,045 \quad FV = 0$$

2nd Package

$$\text{NPMT} = 14,463$$

$$\text{Loan} = 642,922 \times 0.3 = 192,877$$

$$N = 22 \quad i = 4.857600 \quad PV = -192,877 \quad FV = 0$$

$$\text{Total PMT} = 30,958 + 14,463 = 45,421$$

$$\text{ECB} = 4.372868\%$$

$$N = 22 \quad PV = 642,922 - 9,322 = 633,600 \quad PMT = 45,421 \quad FV = 0$$

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745pm**Read and follow instructions to avoid penalty (VB)****Question #2. see page 2 for details**

Assume Cash on Hand (COH), you sold the property as planned under Financing Plan A (FPA).

What is the ECB for Property KIRKLAND?

→ Answer: 4.462008 %

Show work below and use back of PREVIOUS page if you need more space)

COH KIRKLAND FPA Sold as planned 10 years no remaining = 18 - 10 = 8

P = 644,000 LVR =  $0.72 \times 644,000 = 463,680$  Proctor fees =  $463,680 \times 1.25\% = 5,796$

1st Mortgage: Loan =  $463,680 \times 0.65 = 301,392$  HPMT =  $\$23,984$  N = 18 I = 4.091006 PV = -301,392 FV = 0

2nd Mortgage: Loan =  $463,680 \times 0.35 = 162,288$  HPMT =  $\$13,455$  N = 18 I = 4.601756 PV = -162,288 FV = 0

Total PMT =  $23,984 + 13,455 = \$37,439$

M Balance<sub>1</sub> =  $\$160,873$  N = 8 I = 4.091006 PMT = 23,984 FV = 0

M Balance<sub>2</sub> =  $\$88,380$  N = 8 I = 4.601756 PMT = 13,455 FV = 0

Total M Balance =  $160,873 + 88,380 = \$249,253$

ECB = 4.462008 N = 10 PV =  $463,680 - 5,796$  PMT = 37,439 FV = 249,253  
 $= -457,884$

↑ no cancel fee in this case

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745pm**Read and follow instructions to avoid penalty (VB)****Question #3 see page 2 for details**

Assume No COH, use Financing Plan A (FPA) and you sold the property as planned. What is the weighted average cost of capital (WACC) of Property NDG?

**Note:** Cost of debt (rd) = ECB; and the opportunity costs of your down payment equals ECB + plus 6.50% risk premium?

→ Answer 4.9970037

Show work below AND use back of PREVIOUS page if you need more space

NO COH NDG SP: 792,000 FPA Sold as planned 10 years no remaining 8 yrs

$$LVR = 0.72 \times 792,000 = 570,240 \quad \text{Loan} = \frac{570,240}{(1 - 0.0125)} = 577,458 \quad \text{Proc fees} = 577,458 \times 1.25\% = 7,218$$

$$\begin{aligned} \text{1st Mortgage Loan} &= 577,458 \times 0.65 = 375,348 \quad \text{HPMT} = 29,870 \quad N=18 \quad i = 4.091006 \quad PV = -375,348 \quad FV=0 \\ \text{2nd Mortgage Loan} &= 577,458 \times 0.35 = 202,110 \quad \text{HPMT} = 16,756 \quad N=18 \quad i = 4.601756 \quad PV = -202,110 \quad FV=0 \\ \text{Total PMT} &= 29,870 + 16,756 = 46,626 \end{aligned}$$

$$\text{H Balance 1} = 200,354$$

$$N=8 \quad i = 4.091006 \quad \text{PMT} = 29,870 \quad FV=0$$

$$\text{H Balance 2} = 110,063$$

$$N=8 \quad i = 4.601756 \quad \text{PMT} = 16,756 \quad FV=0$$

$$\text{Total H Balance} = 200,354 + 110,063 = 310,417$$

$$\text{ECB} = 4.462083$$

$$N=10 \quad PV = 577,458 - 7,218 = 570,240 \quad \text{PMT} = 46,626 \quad FV = 310,417$$

$$r_e = 4.462083 + 6.5 = 10.962083$$

$$\begin{aligned} \text{WACC} &= [4.462083 \times 0.72 \times (1 - 0.4)] + [10.962083 \times (1 - 0.72)] \\ &= 4.9970037 \end{aligned}$$

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745pm**Read and follow instructions to avoid penalty (VB)****Question #4** see page 2 for details

What is the Gross Income Multiplier (GIM), Net Operating Income Multiplier (NIM) and Overall Capitalization Rate (OCR) for Property KIRKLAND?

Complete the table below for:

	$V = \$644,000$ <b>Investor</b>	$V = \$700,000$ <b>Seller</b>
<b>GIM</b>	10.01 times	10.88 times
<b>NIM</b>	15.41 times	16.75 times
<b>OCR</b>	6.490839 %	5.971571 %

**Show work below AND use back of PREVIOUS page if you need more space**

$$\begin{aligned}
 & \text{GI} = (14,000 \times 2.5) + (14,000 \times 3.03) = 73,080 \\
 & \text{NOL} = 12\% \text{ of } \text{PBT} = (8,770) \\
 & \text{G-I} = 64,310 \\
 & \text{OE} = 35\% \text{ of } \text{EOT} = (22,509) \\
 & \text{NOI} = 41,801
 \end{aligned}$$

$$\begin{aligned}
 \text{GIM}_{\text{buy}} &= \frac{644,000}{64,310} \\
 \text{NIM}_{\text{buy}} &= \frac{644,000}{41,801} \\
 \text{OCR}_{\text{buy}} &= \frac{41,801}{644,000}
 \end{aligned}$$

$$\begin{aligned}
 \text{GIM}_{\text{sell}} &= \frac{700,000}{64,310} \\
 \text{NIM}_{\text{sell}} &= \frac{700,000}{41,801} \\
 \text{OCR}_{\text{sell}} &= \frac{41,801}{700,000}
 \end{aligned}$$

**Question #4b** see page 2 for details

Based on the expectations on GIM, NIM and OCR (see below) for the NDG property, was this transaction a Favorable (\$) or Unfavorable (\$) for the buyer.

Complete the following table:

<b>Buyer's Expected</b>	<b>Favorable \$</b>	<b>Unfavorable \$</b>
<b>GIM = 10.20 times</b>		136,038
<b>NIM = 15.20 times</b>		156,625
<b>OCR = 6.25%</b>		123,184

**Show work below AND use back of PREVIOUS page if you need more space**

$$\begin{aligned}
 \text{GIM} &= 10.2 \times 64,310 = 655,962 < 792,000 \quad (\text{Diff} = 136,038) \\
 \text{NIM} &= 15.2 \times 41,801 = 635,375 < 792,000 \quad (\text{Diff} = 156,625) \\
 \text{OCR} &= \frac{41,801}{668,516} = 6.25\% < 792,000 \quad (\text{Diff} = 123,184)
 \end{aligned}$$



NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745pm**Read and follow instructions to avoid penalty (VB)****Question #5** see page 2 for details

What is the Cash Flows After Taxes (CFAT) for Year 1 and Year 2? Assume Cash on Hand and use Financing Plan B (FPB) for property KIRKLAND.

**Identify ANSWER below**

Use this table if you find it useful

	Year 1	Year 2
<b>NOI</b>	41,801	42,909
<b>Depreciation</b>	(8,758)	(17,166)
<b>EBIT</b>	33,043	25,743
<b>Interest</b>	(21,710)	(21,094)
<b>EBT</b>	11,333	4,649
<b>Taxes</b> $EBT \times 0.4$	(4,533)	(1,860)
<b>EAT</b>	6,800	2,789
<b>CCA</b>	8,158	17,166
<b>Principle</b>	(14,688)	(15,304)
<b>CFAT</b> → <b>Answer</b>	\$870	\$4,651

**Show work below AND use back of PREVIOUS page if you need more space)**

$$SP = 644,000 \quad BUC = 644,000 \times (1 - 0.32) = 437,920$$

$$LVR = 0.8 \times 644,000 = 515,200$$

	BUC	Dep	BULL
1	437,920	8,758	429,162
2	429,162	17,166	

$$\text{1st Mortgage} \quad NPMT = 24,803$$

$$\text{Loan} = 515,200 \times 0.7 = 360,640$$

$$N = 22 \quad i = 3.938025 \quad PV = -360,640 \quad FV = 0$$

$$\text{2nd Mortgage} \quad NPMT = 11,590$$

$$\text{Loan} = 515,200 \times 0.3 = 154,560$$

$$N = 22 \quad i = 4.857600 \quad PV = -154,560 \quad FV = 0$$

	NPMT	Int	Princ	(360,640) Balance
1	24,803	14,202	10,606	350,034
2	24,803	13,784	11,019	

  

	NPMT	Int	Princ	(154,560) Balance
1	11,590	7,508	4,082	150,478
2	11,590	7,171	4,419	

$$\text{Interest year 1} = 14,202 + 7,508 = 21,710$$

$$\text{Interest year 2} = 13,784 + 7,310 = 21,094$$

$$\text{Principle year 1} = 10,606 + 4,082 = 14,688$$

$$\text{Principle year 2} = 11,019 + 4,285 = 15,304$$

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745pm**Read and follow instructions to avoid penalty (VB)****Question #6.**

Raphael purchased a property for \$800,000 and TD Bank financed it under the following terms: Assume No Cash on Hand. There is 1.60% processing fees based on loan amount; and 1.40% cancellation penalty based on outstanding mortgage balance, if mortgage is cancelled before 9 years into term.

- Down payment 32 percent  $LVR = 100 - 32 = 68\%$
- Term 15 years  $\times 12 = 180$
- Payment mode MONTHLY
- Interest Rate 4.75% per annum, compounded semi-annually

How much do you owe the bank after 120 payments?

(No cancellation fee in this case)

→ Answer \$228,814 ✓

Show work below AND use back of PREVIOUS page if you need more space

NO COH

$$EMR = \left[ 1 + \frac{0.0475}{2} \right]^{2/12} - 1 = 0.391972\%$$

$$LVR = 0.68 \times 800,000 = 544,000 \quad \text{Loan} = \frac{544,000}{(1 - 0.0160)} = 552,846$$

$$PMT = 4,287$$

$$N = 180 \quad i = 0.391972 \quad PV = -552,846 \quad FV = 0$$

~~After 120 payments~~ After 120 payments so remaining 60 payments (180 - 120)

$$HBalance = \$228,814$$

$$N = 60 \quad i = 0.391972 \quad PMT = 4,287 \quad FV = 0$$

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745pm**Read and follow instructions to avoid penalty (VB)****Question #7**

You have been given the assignment to appraise a property. This property has 43,000 square feet (s.f.) of usable space on 70,000 square feet of land. Analysis of construction costs indicate a per square-foot cost of \$12.80 for the first 15,000 square feet of space; \$16.90 per square foot for the next 20,000 square feet, and \$23.00 per square foot for the balance. The property is thirty-seven years old with an estimated economic life of eighty years. Changing neighborhood (location depreciation) characteristics have had a negative influence on the property of approximately 14% of building (construction) costs. An examination of similar lots indicate a land value of \$12.00 square foot.

What is the estimated market value of this property based on the Cost Approach?

→ Answer: \$1,123,815

Show work below AND use back of PREVIOUS page if you need more space

Age = 37 years      Useful life = 80 years      Neg influence = 14%

Building as if new  $(12.8 \times 15,000) + (16.90 \times 20,000) + (23 \times 8,000) = \$714,000$

less: Depreciation

Physical Dep

$\frac{37}{80} \times 714,000$

(330,225)

Location Dep

14% of 714,000

(99,960)

Book Value

\$283,815

Add: Land Value

$70,000 \times 12$

840,000

Market Value of Property

\$1,123,815

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745pm**Read and follow instructions to avoid penalty (VB)****Question #8**

A property has 22,000 square feet of rentable space at \$23 per square foot. You expect a vacancy and credit loss of 16% and operating expense (without CCA) is 32% of effective gross income. LVR = 75%, and down payment = \$278,000. Financing is at 5.05% per annum compounded semi-annually, payable annually. The processing fees is 1.45% of loan and the term is 24 years. The opportunity costs of your down payment is 5.75% above the effective cost of borrowing (ECB) of the loan. Tax rate is 40%. You have NO Cash on Hand.

**What is the value of this property based on the Net Income.****Approach?****→ Answer: \$4,312,034****Show work below AND use back of previous page if you need more space**

$$V_{NTA} = \frac{NOI}{WACC_{BT}}$$

$$P6I = 22,000 \times 23 = 506,000$$

$$VCL = 16\% \text{ of } P6I = (80,960)$$

$$EOI = 425,040$$

$$OE = 32\% \text{ of } EOI = (136,013)$$

$$NOI = 289,027$$

NO COH if DPA = 278,000 so LVR = 834,000  $(\frac{278,000 \times 0.75}{0.05})$

Since NO COH, Loan =  $\frac{834,000}{(1 - 0.0443)} = 846,271$  Down fee:  $\frac{846,271 \times 1.45\%}{1.05} = 12,274$

PMT = 62,010

N = 24 | i = 5.113756 | PV = 846,271 | FV = 0

ECB = 5.265300%

N = 24 | PV = 846,271 - 12,274 | PMT = 62,010 | FV = 0  
= -534,000

$rc = 5.265300 + 5.75 = 11.015300$

$$WACC_{BT} = (5.265300 \times 0.75) + (11.015300 \times 0.25)$$

= 6.702800

$$V_{NTA} = \frac{289,027}{0.06702800} = \$4,312,034$$

do not use tax rate because before tax

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745pm**Read and follow instructions to avoid penalty (VB)****Question #9**

You obtained a mortgage 8 years ago for \$840,000 at 6.75% <sup>COH</sup> per annum compounded semi-annually, processing fees was 0.85% of loan, amortized over 20 years. <sup>EAR = 6.863906</sup> Mortgage rates has dropped so that a 12-year loan can be obtained at 5.95% <sup>EAR = 6.038506</sup> per annum, compounded semi-annually. Cancellation penalty is 1.65% of mortgage outstanding balance. There is a 1.80% processing fees on the new loan. If you switch, what is the ECB of the new loan? Assume you have No Cash on Hand.

**→ Answer:** 6.674768 %**Show work below AND use back of previous page if you need more space**

LVR = 840,000 Term = 20 years

MPMT Old = 78,453

N=20  $i = 6.863906$  PV = -840,000 FV = 0

MBalance = 627,672

N=12  $i = 6.863906$  PMT = 78,453 FV = 0

$$\begin{aligned} \text{Canc fee} &= 627,672 \times 1.65\% \\ &= 10,357 \end{aligned}$$

since NO COH Total that owe =  $\frac{627,672 + 10,357}{(1 - 0.0180)} = 649,724$

$$\begin{aligned} \text{proc fee} &= 649,724 \times 1.8\% \\ &= 11,695 \end{aligned}$$

MPMT New = 77,661

N=12  $i = 6.038506$  PV = 649,724 FV = 0

ECB New = 6.674768 %

N=12 PV = -627,672 PMT = 77,661 FV = 0

$$\begin{aligned} \text{New PV} &= 649,724 - 11,695 \\ &= 638,029 \end{aligned}$$

NOVEMBER 3<sup>rd</sup>, 2011 ~ 545 - 745pm**Read and follow instructions to avoid penalty (VB)****Question #10**

On November 3<sup>rd</sup>, 2011 a potential buyer offered you \$1,050,000 for your property and you have the following information to evaluate the offer.

- Housing prices increasing at 3.15% per annum
- \$130 per square foot
- \$48,000 per year reduction for age
- Two-car garage valued at \$100,000 compared to \$65,000 for a one-car garage
- Corner property warrants a 20 percent premium
- Swimming pool worth approximately \$40,000 considered a good selling point in your neighborhood

	Your Property	The Comparable
<b>Selling Price</b>	<b>?</b>	<b>\$550,000</b>
<b>Sold (when)</b>	<b>Now</b>	<b>October 3<sup>rd</sup>, 2010</b>
<b>Location</b>	<b>corner</b>	<b>middle</b>
<b>Size (square feet)</b>	<b>10,800</b>	<b>9,800</b>
<b>Age (years)</b>	<b>12</b>	<b>8</b>
<b>Garage</b>	<b>two-car</b>	<b>one-car</b>
<b>Swimming pool</b>	<b>No</b>	<b>Yes</b>
<b>Financing</b>	<b>Conventional</b>	<b>Conventional</b>

Should you accept this offer? **CIRCLE** → **YES** or **NO** *of course!!!*

What is the value of your home? → Answer: \$611,769

Show work below AND use back of PREVIOUS page, if you need more space

SP  
Adjustments:  
when  $(\frac{13}{12} \times 0.0315 \times 550,000)$  + 18,769  
location  $0.2 \times 550,000$  + 110,000  
size  $(10800 - 9800) \times 130$  + 130,000  
age  $(12 - 8) \times 48,000$  - 192,000  
garage  $100,000 - 65,000$  + 35,000  
swimming pool  $40,000$  - 40,000  
611,769

end