

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

PROPERTY	DOWNTOWN	UPDOWN
Asking Price	\$600,000	\$760,000
Offer (accepted)	At 8% premium	At 10% discount

Financing Plan (FP)	FPA	FPB
Loan-to-Value Ratio	80%	75%
1 <sup>st</sup> Mortgage	65% of Loan @ 4.25%	70% of Loan @ 3.95%
2 <sup>nd</sup> Mortgage	Balance @ 4.65%	Balance @ 4.85%
Compounded	Semi-annually	Semi-annually
Payable	Annually	Annually
Processing fees	1.05% of Loan	1.15% of Loan
Cancel. penalty *	1.35% of M. Balance	1.65% of M. Balance
Term (years)	20	24

\* cancellation fees applicable if cancelled before 10 years

The property has 28,000 square feet of space for rent and the going rate is \$2.90 per square foot for the first 15,000 square feet and at 10% premium per square foot for the remaining area. It is estimated to have a 9% vacancy and credit losses and the operating expenses (excluding depreciation) is approximately 34% of effective gross income.

The property consists of building which represent 72% of value and the balance represent land. 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 13 years with Financing Plan A (FPA); and for 15 years with Financing Plan B (FPB). The tax rate is 40% and 50% of the capital gains is taxed. Inflation is 2.35% per annum.

Read and follow instructions to avoid penalty (VA)

MARCH 13<sup>th</sup>, 2011 ~ 10 - 12 noon ~ MB3. 270

Midterm FINA 450/4 Section A ~ WINTER 2011 Professor J. Mannudiar

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Question #1. see page 2 for details

Assume cash on hand (COH); you stay for the entire term and you want Financing Plan A (FPA).

What is the Effective Cost of Borrowing (ECB) for

DOWNTOWN?

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

COH, FPA, term = 20 yrs, DOWNTOWN

Selling Price = 648,000

LVR = 80%  $\times$  648K = \$518,400 (loan)

Proc. fees = 1.05%  $\times$  518,400 = \$5443

NPMT 1 (6.5%)

336,900 = NPMT (PVA <sub>20, 4.295156%</sub>)

NPMT<sub>1</sub> = \$25,446

NPMT<sub>2</sub> = \$14,196

NPMT 2 (3.5%)

181,440 = NPMT (PVA <sub>20, 4.304056%</sub>)

T. NPMT = \$39,642

ECB

(518,400 - 5443) = 39,642 (PVA <sub>20, ECB</sub>)

512,057 = 39,642 (PVA <sub>20, ECB</sub>)

ECB = 4.560746%

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Question #2. see page 2 for details

Assume No Cash on Hand (No COH), you sold the property as planned under Financing Plan B (FPB).

What is the ECB for Property UPDOWN?

→ Answer: 4.398413%

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

NCOH, FPB, term 15/24, UPDOWN

Selling Price = \$684,000

LVR =  $684K \times 75\% = 513,000$

Loan: .9885K = 513,000

Loan = \$518,968

Prac. fees = \$5,968

HPMT 1 (7.0%)

$363,278 = \text{HPMT} (\text{PVA}_{24}, 3.989006\%)$

\$23,799 = HPMT

Mbal<sub>15</sub> = 23,799 (PVA<sub>9</sub>, 3.989006%)

Mbal<sub>15</sub> = \$177,042

Total HPMT = \$34,982

Total Mbal<sub>15</sub> = \$256,853

Canc. penalty = none since after 10 yrs

ECB =  $(518,968 - 5968) = 34,982 (\text{PVA}_{15}, \text{ECB}) + 256,853 (\text{PVA}_{15}, \text{ECB})$

ECB = 4.398413%

Read and follow instructions to avoid penalty (VA)

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Question #3 see page 2 for details

Assume COH, use Financing Plan B (FPB) and you sold the property as planned. What is the weighted average cost of capital (WACC) of Property DOWNTOWN?

**Note:** Cost of debt (rd) = ECB; and the opportunity costs of your down payment equals ECB + plus 4.35% risk premium?

Answer 4.166694%

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

COH, FPB, term = 15/24, DOWNTOWN

Sell price = \$648,000  
 WDR = 75% × 648,000 = 486,000  
 Proc. fees = \$5,589

$\overline{NPVT_1}$  (70%)

$340,200 = NPVT(PVA_{24}, 3.989006\%)$

$NPVT = \$22,288$

$THPNT = \$32,761$

$MBAL_5 = 22,288(PVA_9, 3.989006\%)$

$MBAL_5 = 10,473(PVA_9, 4.908806\%)$   
 $MBAL_5 = \$74,743$

$THBAL_5 = \$240,545$  No cancellation penalty

$\overline{ECB} = (486,000 - 55,89) = 82,761(PVA_{15}, ECB) + 240,545(PVA_{15}, ECB)$

$ECB = 4.398848\%$

$WACC = 4.398848\% (1 - .4) (75\%) + (4.398848\% + 4.35\%) (25\%)$

$= 1.979482\% + 2.187212\%$

$= 4.166694\%$

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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 DOWNTOWN?

Complete the table below for the buyer and seller

	Investor	Seller
GIM	8.38x	7.76x
NIM	12.69x	11.757x
OCR	7.875463%	8.505500%

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

$$GIM_{inv} = \frac{648000}{77823} = 8.380430x$$

$$GIM_{sell} = \frac{600000}{77823} = 7.7597x$$

$$NIM_{inv} = \frac{648000}{51033} = 12.698x$$

$$NIM_{sell} = \frac{600000}{51033} = 11.757x$$

$$OCR_{inv} = \frac{648000}{51033} = 12.698\%$$

$$OCR_{sell} = \frac{600000}{51033} = 11.757\%$$

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

Complete the following table:

Buyer's Expected	Favorable \$	Unfavorable \$
GIM = 8.50 times	\$ 9,246	
NIM = 12.50 times		10,087
OCR = 7.80%	\$ 6,269	

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

$$GIM: 8.5 \times 77823 = \$657,246 > 648,000 \quad \Delta = 9,246$$

$$NIM: 12.5 \times 51033 = \$637,913 < 648,000 \quad \Delta = -10,087$$

$$OCR: 51033 \div 7.8\% = \$654,269 > 648,000 \quad \Delta = 6,269$$

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Question #5 see page 2 for details

What is the Cash Flows After Taxes (CFAT) for Year 1 and Year 2? Assume NO COH and Financing Plan A (FPA) for property DOWNTOWN.

Identify ANSWER below

Use this table if you find it useful

	Year 1	Year 2
NOI	51033	52232
Depreciation	(9331)	(18289)
EBIT	41702	33943
Interest	(23253)	(22506)
EBT	18449	11437
Taxes	(7380)	(4575)
EAT	11069	6862
CCA	9331	18289
Principle	(16810)	(17557)
CFAT → Answer =	3590	7594

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

NO COH, FPA, DOWNTOWN

Building Amort Sched

457229	18289	9331	457229
BUCC	CCA	BUCC	CCA
416560	9331	416560	9331
2	1	2	1

457229	18289	9331	457229
BUCC	CCA	BUCC	CCA
416560	9331	416560	9331
2	1	2	1
457229	18289	9331	457229
BUCC	CCA	BUCC	CCA
416560	9331	416560	9331
2	1	2	1

Mort. 2 523,901 x 3.5% = 183 865  
EAT = 4.295156% T = 20

457229	18289	9331	457229
BUCC	CCA	BUCC	CCA
416560	9331	416560	9331
2	1	2	1
457229	18289	9331	457229
BUCC	CCA	BUCC	CCA
416560	9331	416560	9331
2	1	2	1

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Question #6.

Raphael purchased a property for \$500,000 and RBC financed it under the following terms: Assume Cash on Hand. There is 1.40% processing fees based on outstanding mortgage balance, if mortgage is cancelled before 9 years into term.

- Down payment 40 percent LVR = 60%
- Term 20 years  $\times 12 = 240$  payment period
- Payment mode MONTHLY
- Interest Rate 5.10% per annum, compounded semi-annually

How much do you owe the bank after 100 payments?

Answer \$ 210,029

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

$$FHLR = \left[ 1 + \frac{5.10\%}{2} \right]^{2/12} - 1 = 0.4205535\%$$

Sell Price = \$500,000

LVR = 60%  $\times$  \$500,000 = \$300,000

Proc. fees = 300,000  $\times$  1.40% = \$4,200

MPI

300,000 = MPMT (PVA

240, 0.4205535%)

MPMT = \$1988

Mbal<sub>100</sub> = 1988 (PVA

100 = \$210,029

Cancellation penalty = 210,029  $\times$  1.60% = \$3360

Total = 213,389

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You have been given the assignment to appraise a property. This property has 44,000 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 \$11.50 for the first 18,000 square feet of space; \$15.60 per square foot for the next 22,000 square feet, and \$21.50 per square foot for the balance. The property is forty-five years old with an estimated economic life of one hundred years. Changing neighborhood (location depreciation) characteristics have had a negative influence on the property of approximately 15% of building (construction) costs. An examination of similar lots indicate a land value of \$15 per square foot.

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

**→ Answer:** \$1,804,480

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

<u>Building</u>	Construction Cost	$[(11.50 \times 18000) + (15.60 \times 22000) + (21.50 \times 4000)]$	\$ 636,200
	Less: Depreciation		
	Physical - Fund	$(45/100 \times 636200)$	
	Location	$(15\% \times 636200)$	
Book value building			254,480
<u>Land</u>	[15 x 70000 sf]		1,050,000
Total Value Property			\$1,804,480



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Question #8

A property has 20,000 square feet of rentable space at \$30 per square foot. You expect a vacancy and credit loss of 13% and operating expense (without CCA) is 32% of effective gross income. LVR = 72%, and downpayment = \$280,000. Financing is at 5.45% per annum compounded semi-annually, payable annually. The processing fees is 1.15% of loan and the term is 30 years. The opportunity costs of your down payment is 3.25% above the effective cost of borrowing (ECB) of this 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: \$5,423,872

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

$$\begin{aligned} \text{PGI} &= [20000 \text{ sf} \times \$30] \\ - \text{VCL} &= [6000 \times 13\%] \\ \text{EGI} &= 522000 \\ - \text{OE} &= (32\% \times 522000) \\ \text{NOI} &= 354,960 \end{aligned}$$

$$\begin{aligned} 600000 \\ (78000) \\ \hline 522000 \\ (167040) \\ \hline 354,960 \end{aligned}$$

$$\begin{aligned} \text{LVR} &= 72\% = \$720,000 \\ \text{DPMT} &= 28\% = 280,000 \\ \text{Stl. price} &= 1,000,000 \\ \text{Loan} &: .9885x = 720,000 \\ x &= 728,376 \\ \text{EPR} &= 5.524256\% \\ \text{Proc. fees} &= \$8,376 \end{aligned}$$

$$\begin{aligned} \text{Value}_{\text{NVA}} &= \frac{354,960}{6.539579\%} \\ &= \$5,423,872 \end{aligned}$$

$$\begin{aligned} \text{WACC}_{\text{BT}} &= 5.629579\% (72\%) + (5.629579\% + 3.25\%) (28\%) \\ \text{WACC}_{\text{BT}} &= 4.053297\% + 2.486282\% \\ \text{WACC}_{\text{BT}} &= 6.539579\% \end{aligned}$$

$$\begin{aligned} \text{NPMT} &= 728,376 - \text{NPMT}(\text{PUB}, 30, 5.524256\%) \\ \text{NPMT} &= 50,251 \\ \text{ECB} &= (728,376 - 8376) = 50,251(\text{PUB}, 30, \text{ECB}) \end{aligned}$$

MARCH 13<sup>th</sup>, 2011 ~ 10 - 12 noon ~ MB3. 270**Read and follow instructions to avoid penalty (VA)****Question #9**

✓ COH

You obtained a mortgage 9 years ago for \$650,000 at 7.15% per annum compounded semi-annually, processing fees was 0.75% of loan, amortized over 25 years. Mortgage rates has dropped so that a 16-year loan can be obtained at 5.55% per annum, compounded semi-annually. Cancellation penalty is 1.50% of mortgage outstanding balance. There is a 1.25% processing fees on the new loan. If you plan to switch, what is the ECB of the new loan? Assume you have no cash on hand.

→ **Answer:** 6.0244461%

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

$$\begin{aligned} \overline{MPRT} \quad 650,000 &= MPRT(PVA_{25}, 7.277806\%) \\ MPRT &= \$57,180 \\ \overline{Mbal}_9 &= 57,180(PVA_{16}, 7.277806\%) \\ Mbal_9 &= \$530,356 \\ \text{Cancellation Penalty} &= \$530,356 \times 1.50\% = \$7,955 \\ T.A.O. &= \$538,311 \\ \text{New loan: } .9875x &= 538,311 \quad \text{Proc. fees} = \$6,814 \\ x &= 545,125 \\ EAR &= 5.627006\% \end{aligned}$$

$$\begin{aligned} \overline{MPRT} - \text{New loan: } 545,125 &= MPRT(PVA_{16}, 5.627006\%) \\ MPRT &= \$52,568 \end{aligned}$$

$$\begin{aligned} \overline{ECB:} &= (545,125 - 6,814 - 7,955) = 52,568(PVA_{16}, ECB) \\ 530,356 &= 52,568(PVA_{16}, ECB) \\ ECB &= 6.0244461\% \end{aligned}$$

MARCH 13<sup>th</sup>, 2011 ~ 10 - 12 noon ~ MB3.270**Read and follow instructions to avoid penalty (VA)****Question #10**

On March 13<sup>th</sup>, 2011 a potential buyer offered you \$700,000 for your property and you have the following information to evaluate the offer.

- Housing prices increasing at 3.15% per annum
- \$125 per square foot
- \$45,000 per year reduction for age
- Two-car garage valued at \$95,000 compared to \$40,000 for a one-car garage
- Corner property warrants a 15 percent premium
- Swimming pool worth approximately \$36,000 considered a *good* selling point in your neighborhood

	Your Property	The Comparable
Selling Price	?	\$750,000
Sold (when)	Now	August 13 <sup>th</sup> , 2010
Location	middle	corner
Size (square feet)	10,800	9,500
Age (years)	12	9
Garage	one-car	two-car
Swimming pool	Yes	No
Financing	Conventional	Conventional

Should you accept this offer? Circle YES or NO

What is the value of your home? Answer: \$659,781

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

\$750,000

Selling Price

Adjustments:

When:  $(7/12 \times 8.15\% \times 750K)$

Loc:  $(15\% \times 750K)$

Size:  $(1300 \times 125)$

Age:  $(8 \times 45000)$

Garage: 55000

Swim. pool: 36000

18,781 (+)

112,500 (-)

162,500 (+)

185,000 (-)

36,000 (+)

659,781

end