Name: Shant Tchaghassanian **ID#** [redacted]

- ***All assumptions discussed in class are applicable***
- Land Costs: $3,000,000
- Demolition costs $500,000
- Land with existing building purchased 8 months before demolition starts and financed at 6.10% per annum, compounded weekly. Assume 52 weeks
- Existing building: $400,000
- Construction Costs:
  - Hard Costs $5,600,000
  - Soft Costs $4,900,000

  ] 10,500,000
- Demolition period: 2 month
- Construction period: 11 months (includes demolition time)
- Demolition costs financed at 5.30% per annum, compounded quarterly. 36% of demolition costs is paid when demolition starts, and the balance is paid when demolition is completed.
- Construction costs financed at 5.70% per annum, compounded monthly. 56% of construction costs is paid when construction starts, and the balance is paid when construction is completed.
- Building depreciated at a CCA rate of 4%, declining balance method, half-year rule applies
- Tax rate: 40%

- Loan-to-Value Ratio = 75%
  - Mortgage #1: 80% of Loan @ 4.20% pa, compounded semi-annually
  - Mortgage #2: 20% of Loan @ 4.70% pa, compounded semi-annually
- No Processing fees
- Term of loan = 15 years and Annual payments

- **PARKING Level 1: 120 cars @ $80 per month**
- **PARKING Level 2: 110 cars @ $90 per month**
- **Rentable area (OFFICE): 16,000 square feet**
- **Net Rent rate per year (OFFICE): $13.50 per square foot**
- **Rentable area (GROUND): 15,000 square feet**
- **Net Rent rate per year (GROUND): $16.75 per square foot**
- **Rentable area (RETAIL): 17,000 square feet**
- **Net Rent rate per year (RETAIL): $15.50 per square foot**
- ***Vacancy and credit losses (OFFICE):***
  - **Year 1: 15%**
  - **Year 2: 8%**
- **Inflation: 2.15% per annum**

- **All LEASES, renewed every 4 years, *except PARKING***
- **PARKING Leases, renewed every year**
- **Operating costs and realty taxes: $12.75 per square foot**

WARNING: Concordia photo ID, pencil, pen, two calculators, permitted on the desk. Everything else under the chair or desk. No sharing of calculators; No cellphones on you. *Untidy work will be penalized.* **DO NOT REMOVE STAPLE, complete NAME and ID before starting**

	Complete the table below	***Year 1***	***Year 2***
	Net Revenue (Net Operating Income)	901,750 $	936,155 $
−	**Capital Cost Allowance (CCA)**	221,204 $	433,560 $
=	**Earnings Before Interest and Taxes**	680,546 $	502,595 $
−	**Interest Expense**	489,696 $	465,877 $
=	**Earnings Before Taxes (EAT)**	190,850 $	36,718 $
−	**Taxes**	76,340 $	14,687 $
=	**Earnings After Taxes (EAT)**	114,510 $	22,031 $
+	**CCA**	+ 221,204 $	433,560 $
−	**Principle**	− 548,407 $	572,226 $
=	**Cash Flow After Taxes (CFAT)**	= ~~327,203~~ $	138,~~666~~ $
		(212693)	(116635)

$$EAR = \left[1 + \frac{NOM}{m}\right]^{m} - 1$$

$$FV = (1+r)^{n} * PV$$

$$\text{PV annuity} = \frac{1-(1+r)^{-n}}{r} \cdot (\text{payment amount}).$$

- **All LEASES, renewed every 4 years, *except PARKING***
- **PARKING Leases, renewed every year**
- **Operating costs and realty taxes: $12.75 per square foot**

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= Earnings After Taxes (EAT)		114,510	22,031
+ CCA	+	221,204	433,560
– Principle	–	548,407	572,226
= Cash Flow After Taxes (CFAT)	=	~~327,203~~ (212693)	~~138,766~~ (116635)

$$EAR = \left[1 + \frac{NOM}{m}\right]^{m} - 1$$

$$FV = (1+r)^{n} * PV$$

$$\text{PV annuity} = \frac{1-(1+r)^{-n}}{r} \cdot (\text{payment amount}).$$

Ground: $15,000 \times 16.75 = \underline{251,250}$ for years 1 and 2.

Retail: $17,000 \times 15.50 = \underline{263,500}$ for years 1 and 2

Parking: $80 \times 12 \times 120 = 115,200$
$90 \times 12 \times 110 = 118,800$
$\Big\} \underline{234,000}$ for year 1

Year 2: $234,000 (1.0215) = \underline{239,031}$

Office: Year 1

→ $0.85 \times 16,000 \times 13.50 = 183,600$

Year 2

→ $0.07 \times 16,000 \times 13.50 (1.0215) = 15,445$

→ $183,600 + 15,445 = 199,045$

Office Operating Cost:

Year 1

→ $0.15 \times 12.75 \times 16,000 = (30,600)$ → $183,600 - 30,600 = \underline{153,000}$

Year 2

→ $0.08 \times 12.75 \times 16,000 (1.0218) = (16,671)$ → $199,045 - 16,671$

$= \underline{182,374}$

Summary:

	Year 1	Year 2
ground	251,250	251,250
retail	263,500	263,500
Parking	234,000	239,031
office	153,000	182,374
Total	901,750	936,155

LVR = 75%

$\Rightarrow$ 11,266,907 B

Loan 1: 80% of loan = 9,013,526 B

EFF: $\left(1 + \frac{0.042}{2}\right)^2 - 1 = 0.042441$

MPmt $\Rightarrow 9{,}013{,}526 = \text{Pmt}\ \frac{1 - (1 + 0.042441)^{-15}}{0.042441} \Rightarrow$ Pmt = 824,584 B

Loan 2: 20% of loan = 2,253,381 B

EFF: $\left(1 + \frac{0.047}{2}\right)^2 - 1 = 0.047\,55225$

MPmt $\Rightarrow 2{,}253{,}381 = \text{Pmt}\ \frac{1 - (1 + 0.047\,55225)^{-15}}{0.047\,55225} \Rightarrow$ Pmt = 213,519 B

1)

Yr	Pmt	Int.	Princ.	End Bal.
0	—	—	—	9,013,526
1	824,584	382,543	442,041	8,571,485
2	824,584	363,782	460,802	8,110,683

2)

Yr	Pmt	Int	Princ	End Bal
0	—	—	—	2,253,381
1	213,519	107,153	106,366	2,147,015
2	213,519	102,095	111,424	2,035,891

3)

	Year 1	Year 2
Int.	489,696 B	465,877 B
Princ.	548,407 B	572,226 B

Fina210/4 Sec A | Quiz #4A (10%) | April 1st, 2015

NOI

Name: Leando Otero-Costa **ID#** 7210...

LC EB DC CC

- ***All assumptions discussed in class are applicable***
- Land Costs: $3,000,000
- Demolition costs $500,000
- Land with existing building purchased 9 months before demolition starts and financed at 6.05% per annum, compounded weekly. Assume 52 weeks
- Existing building: $400,000
- Construction Costs:
  - Hard Costs $5,600,000
  - Soft Costs $4,900,000
- Demolition period: 2 month
- Construction period: 10 months (includes demolition time)
- Demolition costs financed at 5.70% per annum, compounded quarterly. 36% of demolition costs is paid when demolition starts, and the balance is paid when demolition is completed.
- Construction costs financed at 5.30% per annum, compounded monthly. 56% of construction costs is paid when construction starts, and the balance is paid when construction is completed.
- Building depreciated at a CCA rate of 4%, declining balance method, half-year rule applies
- Tax rate: 40%
- Loan-to-Value Ratio = 75%
  - Mortgage #1: 80% of Loan @ 4.10% pa, compounded semi-annually
  - Mortgage #2: 20% of Loan @ 4.75% pa, compounded semi-annually
- No Processing fees
- Term of loan = 15 years and Annual payments

- **PARKING Level 1: 120 cars @ $90 per month** x12
- **PARKING Level 2: 110 cars @ $80 per month** x12
- **Rentable area (GROUND): 16,000 square feet**
- **Net Rent rate per year (GROUND): $13.50 per square foot**
- **Rentable area (OFFICE): 15,000 square feet**
- **Net Rent rate per year (OFFICE): $16.75 per square foot**
- **Rentable area (RETAIL): 18,000 square feet**
- **Net Rent rate per year (RETAIL): $15.50 per square foot**
- ***Vacancy and credit losses (OFFICE):***
  - **Year 1: 15%**
  - **Year 2: 8%**

- **Inflation: 2.15% per annum**

8 ... 10

- **All LEASES, renewed every 4 years, *except PARKING***
- **PARKING Leases, renewed every year**
- **Operating costs and realty taxes: $12.75 per square foot**

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	Complete the table below	***Year 1***	***Year 2***
	Net Revenue (Net Operating Income)	915 078	951 157
-	**Capital Cost Allowance (CCA)**	(2%) 220 248	(4%) 431 686
=	**Earnings Before Interest and Taxes**	694 827	519 471
-	**Interest Expense**	480 080	456 615
=	**Earnings Before Taxes (EAT)**	214 747	62 856
-	**Taxes** 40%	85 899	25 142
=	**Earnings After Taxes (EAT)**	128 848	37 714
+	**CCA**	220 248	431 686
-	**Principle**	549 576	573 041
=	**Cash Flow After Taxes (CFAT)**	-200 480	-103 641

NOI: Parking: $120 \times 90 \times 12 = 129\,600$ ▷ Year 1 = 235 200 $

$110 \times 80 \times 12 = 105\,600$

Year 2 : $235\,200 \times (1+0.0215) = 240\,257$ $

Ground : $16\,000 \times 13.50 = 216\,000$

Retail : $18000 \times 15.50 = 279\,000$

OFFice: Year 1 : $15000 \times 16.75 \times 85\% = 213\,563$

Year 2 : $15000 \times 16.75 \times 7\% \times (1+0.0215) = 17\,966 + 213\,563 = 231\,529$

10

$$EAR = \left[1 + \frac{NOM}{m}\right]^{m} - 1$$

Vacancy →

$$FV = (1+r)^{n} * PV$$

$$\text{PV annuity} = \frac{1-(1+r)^{-n}}{r} \cdot (\text{payment amount}).$$

Vacancy: Year 1: 15000 x 12.75 x 15% = (28 688)

Year 2: 15000 x 12.75 x 8% x (1.0215) = (15 629)

Year 1 213 563 - 28 688 = 184 875

Year 2 231 529 - 15 629 = 215 900

VOI Year 1: 915 075

Year 2: 951 157

Interest Expense

LVR = 14 973 590 x 75% = 11 230 193 $

230 193 → M#1 80% x 11 230 193 = 8 984 154 (PV)

M#2 20% x 11 230 193 = 2 246 039

Loan #1 EFF = $\left[1 + \frac{4.10\%}{2}\right]^2 - 1 = 4.142025\%$ (Y/Y), term 15 years (n), (0 FV)

CPmt = 816 090 $

Loan #2 EFF = $\left[1 + \frac{4.75\%}{2}\right]^2 - 1 = 4.806406\%$ (Yy), term 15 years (n), (0 FV)

(PV) = 2246 039

CPmt = 213 566 $

Loan #1

Yr	MPmt	Interest	Principle	L. Balance
0	—			8 984 154
1	816 090	372 126	443 964	8 540 190
2	816 090	353 737	462 353	8 077 837
...				
15				

Loan #2

Yr	M Pmt	Interest	Principle	L. Balance
0				2 246 039
1	213 566	107 954	105 612	2 140 427
2	213 566	102 878	110 688	2 029 739
...				
15				

*continued on last page →

TCOP: LC= 3M$ CC= 10 500 000 $
EB= 400K $
DC= 500K $

LC^{+FC} -19M: $3\,000\,000\left(1+\frac{6.05\%}{52}\right)^{\frac{19}{12}*52} = 3\,301\,405$

EB^{+FC} -19M: $400K\left(1+\frac{6.05\%}{52}\right)^{19/12*52} = 440\,187$

DC^{+FC} -10M: $500K * 36\%\left(1+\frac{5.70\%}{4}\right)^{10/3} = 188\,693$

DC^{+FC} -8M: $500K * 64\%\left(1+\frac{5.70\%}{4}\right)^{8/3} = 332\,305$

C^{+FC} -8M: $10\,500\,000 * 56\%\left(1+\frac{5.30\%}{12}\right)^{8} = 6\,091\,000$

C^{+FC}: $10\,500\,000 * 44\% = 4\,620\,000$

COP= 14 973 590$

LC^{+FC}= 3 301 405 - 301 405 + 440 187 + 520 998 = 3 961 185

EB^{+FC}= 440 187 - 440 187 = 0

DC^{+FC}= 520 998 - 520 998 = 0

C^{+FC}= 10 711 000 + 301 405 = 11 012 405 Bldg Value

A
Yr 1 11 012 405 * 2% = 220 248 $
Yr 2 10 792 157 * 4% = 431 686 $

Interest Expense Year 1 = 372 126 + 107 954 = 480 080 $
Principle Year 1 = 443 964 + 105 612 = 549 576 $

Interest Expense Year 2 = 353 737 + 102 878 = 456 615 $
Principle Year 2 = 462 353 + 110 688 = 573 041 $

Check: Year 1 ✓

NOI : 915 075
- mpmt : (816 090 + 213 566)
- taxes : (85 899)

CFAT Year 1 = -200 480 $

Year 2 ✓

NOI : 951 157
- mpmt : (816 090 + 213 566)
- taxes : (25 142)

CFAT Year 2 = -103 641 $