

Name: Paul Kantorovich

ID# [REDACTED]

Fina450/1 AA (SUMMER 2012)

Quiz #3A (worth 5%)

June 7th, 2012

- **Demolition costs: \$300,000**
- **Construction Costs: \$5,000,000 (Includes \$2,100,000 for condos)**
- **Land: \$4,500,000**
- **Building (Existing): \$680,000**
- **Demolition time: 3 months**
- **Construction time: 14 months (including demolition time)**
- **Financing cost at 7.25% per annum, compounded monthly $\Rightarrow 7.495830$**
- **Financing of demolition costs: 65% down, and balance paid on completion of demolition**
- **Financing of construction costs: 45% down, and balance paid on completion of construction**
- **The condos were sold for \$4,800,000**
- **Taxable capital gains: 50%**
- **Tax rate: 40%**
 - **Loan-to-Value ratio: 70%**
 - **You have NO cash on hand (No COH)**
 - **1st Mortgage: 75% of loan, at 5.45% per annum compounded semi-annually**
 $\Rightarrow 5.524256\%$
 - **2nd Mortgage: Balance of loan, at 5.95% per annum, compounded semi-annually**
 $\Rightarrow 6.038506\%$
 - **Processing fees: 1.25% of loans**
 - **Term or amortization period: 12 years**
 - **Mortgage payments: paid annually**
 - **Cost of equity = ECB + 8.50% risk premium**
 - **Cost of Debt (rd) = Effective Cost of Borrowing (ECB)**

$$\text{and } +fc: 4.5m(1.0749583)^{\frac{14}{12}} = 4,895,940$$

$$EB + fc: 680k(1.0749583)^{\frac{14}{12}} = 739,831$$

$$\Rightarrow TCOF: 11,114,25$$

$$\begin{aligned} \text{Demo } +fc: t=-14: 0.65(300,000) \cdot (1.0749583)^{\frac{14}{12}} &= 212,157 \\ t=-11: 0.35(300,000) \cdot (1.0749583)^{\frac{11}{12}} &= 112,193 \end{aligned}$$

$$324,350$$

$$\begin{aligned} IC + fc: t=-11: 0.45(5m) \cdot (1.0749583)^{\frac{11}{12}} &= 2,404,131 \\ t=0: 0.55(5m) \cdot (1.0749583)^{\frac{0}{12}} &= 2,750,000 \end{aligned}$$

$$5,154,131$$

CFAI from sale of condos:

$$\text{Condo construction costs: } 2,100,000 \cdot 0.45 \cdot 1.0749583^{\frac{11}{12}} = 1,009,735$$
$$0.55 \cdot 2,100,000 = 1,155,000$$

$$\underline{2,164,735}$$

Sale price: \$4.8m

- Construction $\underline{(2,164,735)}$

Capital gain $2,635,265$

Tax 40% on $(527,053)$

50% of CG $\underline{2,108,230}$

$$\Rightarrow \text{CFAT} = 4,800,000 - 527,053 = \underline{4,272,947}$$

$$\Rightarrow \text{NCOP} = 11,114,252$$
$$(4,272,947)$$

$$\underline{6,841,305}$$

$$\text{Loan: } 0.7 \cdot 6,841,305 = \underline{4,788,914}$$

$$\text{Downpayment: } \underline{2,052,392}$$

$$\text{Amount need to borrow (no COM)} = \frac{4,788,914}{0.9375} = \underline{4,849,533}$$

$$M_{\text{pmt}_1}: PV = 0.75 \cdot 4,849,533$$

$$N = 12$$

$$I/Y = 5.524256$$

$$\text{PMT} = \underline{422,585}$$

$$\text{ECB: } PV = 4,788,914$$

$$N = 12$$

$$\text{PMT} = -567,500$$

$$I/Y = \underline{5.881423\%}$$

$$M_{\text{pmt}_2}: PV = 0.25 \cdot 4,849,533$$

$$N = 12$$

$$I/Y = 6.033506$$

$$\text{PMT} = \underline{144,915}$$

WACC:

$$(0.7)(1-0.4)(0.05881423) +$$
$$(0.3)(0.14381423)$$

$$re = 5.881423 + 8.5 = 14.381423\%$$

$$= \underline{6.784625\%}$$

Name: Paul Kantorovich

ID# [REDACTED]

COMPLETE THE TABLES BELOW

Net Costs of Project at put-in-use	\$6,841,305
Loan (net)	\$4,788,914
Initial Investment	\$2,052,392
Mortgage payment of 1 st Mortgage	\$422,585
Mortgage payment of 2 nd Mortgage	\$144,915
Mortgage payment	\$567,500
Effective cost of borrowing (ECB)	5.881423%
Discount rate (WACC)	6.784625%

Name: Aoun Alexandria

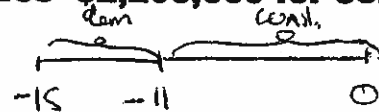
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Fina450/1 AA (SUMMER 2012)

Quiz #3B (worth 5%)

June 7th, 2012

- Demolition costs: \$310,000
- Construction Costs: \$5,000,000 (includes \$2,200,000 for condos)
- Land: \$4,600,000
- Building (Existing): \$690,000
- Demolition time: 4 months
- Construction time: 15 months (including demolition time)
- Financing cost at 7.65% per annum, compounded monthly
- Financing of demolition costs: 55% down, and balance paid on completion of demolition
- Financing of construction costs: 35% down, and balance paid on completion of construction
- The condos were sold for \$4,750,000
- Taxable capital gains: 50%
- Tax rate: 40%
- Loan-to-Value ratio: 80%
- You have NO cash on hand (No COH)
- 1st Mortgage: 70% of loan, at 5.35% per annum compounded semi-annually
- 2nd Mortgage: Balance of loan, at 5.85% per annum, compounded semi-annually
- Processing fees: 1.35% of loans
- Term or amortization period: 12 years
- Mortgage payments: paid annually
- Cost of equity = ECB + 8.50% risk premium
- Cost of Debt (rd) = Effective Cost of Borrowing (ECB)



(5)

Financing cost.

$$EAR = \left(1 + \frac{0.0765}{12}\right)^{12} - 1 = 7.924011\%$$

Cost of Project

$$Land + FC = 4,600,000 \cdot (1.07924011)^{15/12} = \$5,060,057$$

$$EB + FC = 690,000 \cdot (1.07924011)^{15/12} = \$759,009$$

$$\text{Demolition} + FC \rightarrow 0.55 \cdot 310,000 \cdot (1.07924011)^{15/12} = \$187,552$$

$$0.45 \cdot 310,000 \cdot (1.07924011)^{11/12} = \$149,600$$

$$\text{Construction} + FC \rightarrow 0.35 \cdot 5,000,000 \cdot (1.07924011)^{11/12} = \$1,876,706$$

$$0.65 \cdot 5,000,000 = \$3,250,000$$

$$\begin{aligned} \text{Total Cost of Project} \\ &= \$11,282,924 \end{aligned}$$

Cost of Condos

$$0.35 \cdot 2,200,000 \cdot (1.07924011)^{11/12} = \cancel{2,200,000} \$825,751$$

$$0.65 \cdot 2,200,000 = \$1,430,000$$

$$\text{Sale of Condos} \rightarrow 4,750,000$$

$$\text{Cost of Condos} \rightarrow (2,255,751)$$

$$\text{CAP. GAIN} \rightarrow 2,494,249$$

$$\text{Taxes} \rightarrow 0.50 \cdot 0.40 \cdot 2,494,249 = (498,850)$$

$$\text{CFAT Sale of Condos} : 4,251,150$$

$$\begin{aligned} \text{NCOF of p.u.} &= 11,282,924 - 4,251,150 \\ &= \underline{\underline{\$7,031,774}} \end{aligned}$$

$$\bullet \text{ Net Loan} = 0.80 \cdot 7,031,774 = \$5,625,419$$

$$\bullet \text{ Initial Investment} = 0.20 \cdot 7,031,774 = \$1,406,355$$

MORTGAGES

$$\begin{aligned} \frac{\$5,625,419}{1 - 0.0135} &= \$5,702,401 \rightarrow \$3,991,681 @ \text{EAR} = 5.421556\% \\ &\rightarrow \$1,710,720 @ \text{EAR} = 5.935556\% \end{aligned}$$

MTG #1

$$PV = 3,991,681$$

$$FV = 0$$

$$i/y = 5.421556\%$$

$$n = 12$$

$$\Rightarrow \underline{\underline{PMT = \$461,134}}$$

MTG #2

$$PV = 1,710,720$$

$$FV = 0$$

$$i/y = 5.935556\%$$

$$n = 12$$

$$\Rightarrow \underline{\underline{PMT = \$203,329}}$$

$$\text{Total MTG Payments} = \underline{\underline{\$664,463}}$$

Name: AOUN ALEXANDRE

ID#

COMPLETE THE TABLES BELOW

Net Costs of Project at put-in-use	\$7,031,774 ✓
Loan (net)	\$5,625,419 ✓
Initial Investment	\$1,406,355 ✓
Mortgage payment of 1 st Mortgage	\$461,134 ✓
Mortgage payment of 2 nd Mortgage	\$203,329 ✓
Mortgage payment	\$664,463 ✓
Effective cost of borrowing (ECB)	5.822330% ✓
Discount rate (WACC)	5.659184% ✓

$$PV = 5,625,419$$

$$FV = 0$$

$$n = 12$$

$$PMT = 664,463$$

$$\Rightarrow \text{ECB} = 5.822330\%$$

$$\Rightarrow \text{Cost of equity} = 14.322330\%$$

~~Cost of debt~~

$$WACC = 0.80 \cdot 0.60 \cdot 5.822330 + 0.20 \cdot 14.322330$$

$$= \underline{5.659184\%}$$

Name: Christopher Barbieri

ID# [REDACTED]

Fina450/1 AA (SUMMER 2012)

Quiz #3C (worth 5%)

June 7th, 2012

- Demolition costs: \$300,000
- Construction Costs: \$5,000,000 (Includes \$2,100,000 for condos)
- Land: \$4,500,000
- Building (Existing): \$680,000
- Demolition time: 3 months
- Construction time: 14 months (including demolition time)
- Financing cost at 7.85% per annum, compounded monthly
- Financing of demolition costs: 65% down, and balance paid on completion of demolition
- Financing of construction costs: 45% down, and balance paid on completion of construction
- The condos were sold for \$4,800,000
- Taxable capital gains: 50%
- Tax rate: 40%
 - Loan-to-Value ratio: 70%
 - You have NO cash on hand (No COH)
 - 1st Mortgage: 75% of loan, at 5.45% per annum compounded semi-annually 5.524256
 - 2nd Mortgage: Balance of loan, at 5.95% per annum, compounded semi-annually 6.038506
 - Processing fees: 1.25% of loans
 - Term or amortization period: 12 years
 - Mortgage payments: paid annually
 - Cost of equity = ECB + 8.50% risk premium
 - Cost of Debt (rd) = Effective Cost of Borrowing (ECB)

5

300K @ .65
680K
4.5M

5M x .45
300K x .35

5M x .55

14

11

0

$$4,500,000 \left(1 + \frac{.0785}{12}\right)^{14} = \boxed{4,930,116}$$

$$680,000 \left(1 + \frac{.0785}{12}\right)^{14} = \boxed{744,995}$$

$$300,000 \times 0.65 \left(1 + \frac{.0785}{12}\right)^{14} = 213,638 \quad \left. \vphantom{300,000 \times 0.65} \right\} \boxed{326,446}$$

$$300,000 \times 0.35 \left(1 + \frac{.0785}{12}\right)^{14} = 112,808$$

$$5,000,000 \times 0.45 \left(1 + \frac{.0785}{12}\right)^{11} = 2,417,307 \quad \left. \vphantom{5,000,000 \times 0.45} \right\} \boxed{5,167,307}$$

$$5,000,000 \times .55 = 2,750,000$$

$$\boxed{TCOP = 11,168,864}$$

$$2,180,000 \times 0.45 \left(1 + \frac{.0785}{12}\right)^{11} = 1,013,269 \quad \left. \vphantom{2,180,000 \times 0.45} \right\} 2,170,269$$

$$2,100,000 \times 0.55 = 1,155,000$$

4,800,000

(2,170,269)

2,629,731

(1,314,865)

1,314,865

(525,946)

4,800,000

-(525,946)

4,274,054

11,168,864

(4,274,054)

$\boxed{6,894,810}$

Loan = 4,826,367

DP = 2,068,443

$$4,826,367 \begin{cases} .75 & 3,619,775 \\ .25 & 1,206,592 \end{cases}$$

M#1: PV = 3,665,595

FV = 0

N = 12

I/Y = 5.524256

$\boxed{PMT = 425,890}$

M#2:

PV = 1,221,865

FV = 0

N = 12

I/Y = 6.038306

$\boxed{PMT = 146,048}$

PV = 4,826,367

FV = 0

N = 12

PMT = 571,938

$\boxed{ECB = 5.881414\%}$

WAAC = $5.881414(0.7)(0.6) + 5.881414 + 8.5(0.3)$

$\boxed{= 6.784618\%}$

Name: Christopher Barbieri

ID#

COMPLETE THE TABLES BELOW

Net Costs of Project at put-in-use	6,894,810
Loan (net)	4,826,367
Initial Investment	2,068,443
Mortgage payment of 1 st Mortgage	425,896
Mortgage payment of 2 nd Mortgage	146,048
Mortgage payment	571,938
Effective cost of borrowing (ECB)	5.881414%
Discount rate (WACC)	6.784618%

Name: Danis, Nadia

ID# [REDACTED]

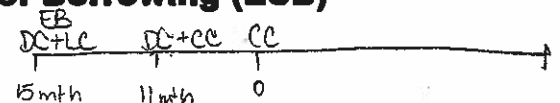
Fina450/1 AA (SUMMER 2012)

Quiz #3D (worth 5%)

June 7th, 2012

- ✓ • **Demolition costs: \$310,000**
- ✓ • **Construction Costs: \$5,000,000 (Includes \$2,200,000 for condos)**
- ✓ • **Land: \$4,600,000**
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- ✓ • **Demolition time: 4 months**
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- ✓ • **Financing of demolition costs: 55% down, and balance paid on completion of demolition**
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- ✓ • **The condos were sold for \$4,750,000**
- ✓ • **Taxable capital gains: 50%**
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 - ✓ ○ **Loan-to-Value ratio: 80%**
 - ✓ ○ **You have NO cash on hand (No COH)**
 - ✓ ○ **1st Mortgage: 70% of loan, at 5.35% per annum compounded semi-annually**
 - ✓ ○ **2nd Mortgage: Balance of loan, at 5.85% per annum, compounded semi-annually**
 - ✓ ○ **Processing fees: 1.35% of loans**
 - ✓ ○ **Term or amortization period: 12 years**
 - ✓ ○ **Mortgage payments: paid annually**
 - **Cost of equity = ECB + 8.50% risk premium**
 - ✓ ○ **Cost of Debt (rd) = Effective Cost of Borrowing (ECB)**

$$EAR = \left[1 + \frac{0.0795}{12}\right]^{12} - 1 = 0.08246172$$



$$EB = 690,000 (1 + 0.08246172)^{15/12} = \underline{761,842}$$

$$LC = 4,600,000 (1 + 0.08246172)^{15/12} = \underline{5,078,945}$$

$$DC \text{ (part 1)} = 310,000 (1.08246172)^{15/12} \times 0.55 = 188,252$$

$$\text{(part 2)} = 310,000 (1.08246172)^{11/12} \times 0.45 = 150,010$$

$$DC \text{ total} = 188,252 + 150,010 = \underline{338,262}$$

$$CC \text{ (part 1)} = 5,000,000 (1.08246172)^{11/12} \times 0.35 = 1,881,841$$

$$\text{(part 2)} = 5,000,000 (1 - 0.35) = 3,250,000$$

$$CC \text{ total} = \underline{5,131,841}$$

$$TCOP = 11,310,890$$

Sale of condos

\$4,750,000

Less: cost of condos $[2,2M / 5M \times 5,131,841]$

(2,258,010)

Taxable capital gain (50%)

2,491,990

1,245,995

Taxes (40%)

(498,398)

CFAT - Sale of condos

\$4,251,602

$$NCOP = 11,316,890 - 4,251,602 = \underline{\$7,059,288}$$

$$Loan = 7,059,288 \times 0.80 = \underline{5,647,430}$$

$$Dpmt = 7,059,288 - 5,647,430 = 1,411,858$$

$$\text{amount borrowed} = \frac{5,647,430}{(1 - 0.0135)} = 5,724,714$$

$$\text{mortgage \#1} = 5,724,714 \times 0.70 \\ = 4,007,300$$

$$\text{mortgage \#2} = 5,724,714 - 4,007,300 \\ = 1,717,414$$

mpmt #1

$$EAR = \left[1 + \frac{0.0535}{2}\right]^2 - 1 = 5.421556\%$$

$$\text{mpmt} = PMT(PVA_{12, 5.421556\%}) = 4,007,300 \\ = \underline{462,938}$$

mpmt #2

$$EAR = \left[1 + \frac{0.0585}{2}\right]^2 - 1 = 5.935556\%$$

$$\text{mpmt} = PMT(PVA_{12, 5.935556\%}) = 1,717,411 \\ = \underline{204,125}$$

$$\text{Total mpmt} = 462,938 + 204,125 = \underline{667,063}$$

$$PV = 5,647,430$$

$$FV = 0$$

$$PMT = 667,063$$

$$N = 12$$

$$ECB = \underline{5.822332\%} = r_D$$

$$r_E = ECB + 0.085 = 0.143223325$$

$$WACC = 0.05822332(0.80)(0.60) + 0.14322332(0.20) \\ = 0.027947196 + 0.0286447$$

$$WACC = \underline{0.05659186}$$

Name: Danis, Nadia

ID# [REDACTED]

COMPLETE THE TABLES BELOW

Net Costs of Project at put-in-use	\$ 7,059,288
Loan (net)	5,647,430
Initial Investment	1,411,858
Mortgage payment of 1 st Mortgage	462,938
Mortgage payment of 2 nd Mortgage	204,125
Mortgage payment	667,063
Effective cost of borrowing (ECB)	5.822332
Discount rate (WACC)	5.659186

(5)