
VALUING OTHER ASSETS
Problem 1

$$a. \text{Beta} = 0.80 (1 + (1-.4)(30/70)) = 1.0057$$

$$\text{Cost of equity} = 6\% + 1.0057 (4\%) = 10.02\%$$

$$\text{Cost of capital} = 10.02\% (.7) + 7\% (1-.4) (.3) = 8.28\%$$

(I am assuming that the potential buyer is diversified)

Revenue =	5000000
- Operating Expenses =	3700000 (Includes the chef salary)
EBIT =	1300000
EBIT (1-t) =	780,000

$$\text{Value of café} = 780000 (1.05) / (.0828 - .05) = \$25,000,000$$

b. If the chef leaves,

Revenue =	4250000
- Operating Expenses =	3311500 (0.3* 3700000+0.7*.85*3700000)
EBIT =	938500
EBIT (1-t)=	563100

$$\text{Value of café} = 563,100 (1.05) / (.0828 - .05) = \$18,048,077$$

Problem 2

Adjusted Operating Income =	\$100,000 ! I subtracted the manager's salary
Adjusted after-tax Operating Income =	\$65,000
Adjusted ROC =	13.00% ! 65,000/ (200000+300000)
Expected Growth Rate =	3%
Expected Reinvestment rate =	23.08%
Total Unlevered Beta =	2.00 ! I used total beta because not diversified
Total Levered Beta =	2.33 ! 2 (1+ (1-.35)(.25))
Cost of equity =	14.30%
Cost of debt =	5.20%
Cost of capital =	12.48% ! I used industry averages, not book value

Value of Bagel shop = \$543,249

Problem 3

Value of copyright = $120,000/1.12 + 100,000/1.12^2 + 80,000/1.12^3 = \$243,805$

Problem 4

Year	Revenues	Employee Expenses	Rent	Equipment rental	Medical Insurance	EBIT	EBIT (1-t)	PV
Current	\$800,000	\$200,000	\$100,000	\$75,000	\$75,000	\$350,000	\$210,000	
1	\$832,000	\$208,000	\$104,000	\$78,750	\$80,250	\$361,000	\$216,600	\$195,135
2	\$865,280	\$216,320	\$108,160	\$82,688	\$85,868	\$372,245	\$223,347	\$181,273
3	\$899,891	\$224,973	\$112,486	\$86,822	\$91,878	\$383,732	\$230,239	\$168,349
4	\$935,887	\$233,972	\$116,986	\$91,163	\$98,310	\$395,457	\$237,274	\$156,300
5	\$973,322	\$243,331	\$121,665	\$95,721	\$105,191	\$407,414	\$244,448	\$145,068
6	\$1,012,255	\$253,064	\$126,532	\$100,507	\$112,555	\$419,598	\$251,759	\$134,600
7	\$1,052,745	\$263,186	\$131,593	\$105,533	\$120,434	\$432,000	\$259,200	\$124,846
8	\$1,094,855	\$273,714	\$136,857	\$110,809	\$128,864	\$444,611	\$266,767	\$115,757
9	\$1,138,649	\$284,662	\$142,331	\$116,350	\$137,884	\$457,422	\$274,453	\$107,291
10	\$1,184,195	\$296,049	\$148,024	\$122,167	\$147,536	\$470,419	\$282,251	\$99,404
Value of Practice =								\$1,328,619

Problem 5

a. It would depend upon the quality of the card For an excellent card, I would be willing to pay about \$ 767 (the average of the three prices – 650, 800 and 850). For a good card, I would be willing to pay about \$ 483 and for a poor card, only \$275.

b. If the seller has been rated poorly, I would not be willing to pay as much. I would discount the card to reflect my concern that the card is not what it is claimed to be.

Problem 6

a. Standard deviation of portfolio entirely composed of stocks = 20%

Variance of mixed portfolio = $.20^2 (.90)^2 + .15^2 (.10)^2 + 2(.20)(.15)(.10)(.9)(.1)$
 $= .0332$

Standard deviation of mixed portfolio = 18.21%

b. I would not add art to my portfolio. The expected return is less than the riskfree rate and I would gain a much bigger gain by putting 10% of my money in the riskless asset (with a zero standard deviation and a correlation of zero with the market) than I would by putting it in art. For art to qualify as a good investment, the expected return would have to be greater than 6% or the correlation would have to be negative.