

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
Equity	\$1,000,000	\$1,120,000	\$1,295,200	\$1,528,960	\$1,824,976	\$2,187,314
Debt	\$3,000,000	\$2,700,000	\$2,400,000	\$2,100,000	\$1,800,000	\$1,500,000
D/E Ratio	3.00	2.41	1.85	1.37	0.99	0.69
Beta	2.58	2.25	1.95	1.68	1.47	1.30
Cost of Equity	24.90%	23.11%	21.41%	19.95%	18.78%	17.86%
Cum. COE	1.25	1.54	1.87	2.24	2.66	3.14
WACC	11.63%	11.87%	12.18%	12.57%	13.03%	13.53%
Cum WACC	1.12	1.25	1.40	1.58	1.78	2.02

$$\begin{aligned} \text{Cost of Equity in Year 2} &= \text{Cost of Equity in Year 1} - (\text{Beta}_1 - \text{Beta}_2)(5.5\%) \\ &= 24.90\% - (2.58 - 2.25)(5.5\%) = 23.11\% \end{aligned}$$

$$\begin{aligned} \text{c. Terminal Value of Equity} &= \$363,089 / (.1786 - .06) = \$3,060,662 \\ \text{Terminal Value of Firm} &= \text{Terminal Value of Equity} + \text{Outstanding Debt} \\ &= 3,060,662 + 1,500,000 = 4,560,662 \end{aligned}$$

$$\begin{aligned} \text{d. PV to Equity Investors} &= -220,000 / 1.249 - 168,800 / (1.249)(1.2311) - 114,640 / (1.2490)(1.2311)(1.2141) \\ &\quad - 57,224 / (1.2490)(1.2311)(1.2141)(1.1995) + (3774 \\ &\quad + 3,060,662) / (1.2490)(1.2311)(1.2141)(1.1995)(1.1878) \\ &= \$779,220 < 1,000,000 \end{aligned}$$

Deal does not make sense from the viewpoint of equity investors.
 PV to firm = Discount FCF at WACC = 3,833,357 < 4,000,000
 Overall, deal does not make sense.

Problem 9

- No. The stockholders could do it themselves at far lower costs.
- Yes. Diversification may provide a benefit to the owner of a private firm, since much of his or her wealth is probably concentrated in the firm.
- If by doing this acquisition, the publicly traded firm was able to increase its debt capacity substantially and take better projects, it might make sense to do the acquisition.

CHAPTER 26

VALUING REAL ESTATE**Problem 1**

The beta estimated by this analyst is probably too low because –

- (a) appraised values tend to be smoothed out relative to the market values of real estate
- (b) the stock index was used as the market portfolio instead of an index including all assets

Problem 2

While REITs have more reliable market prices than the appraised series, the betas estimated

using REITs will still have the following problems

- (a) The process of securitizing real estate (in REITs) may affect their risk characteristics
- (b) REITs operate under significant legal restrictions on investment, financing and dividend policy, all of which may affect the beta.
- (c) Finally, the stock index is still the inappropriate market index, if one's objective is to measure the market risk.

Problem 3

Commercial Real Estate in New York: Financial Service Firms

Commercial Real Estate in Houston: Oil Service Firms

Commercial Real Estate in San Jose: Computer Software Firms

Hotel Complex in Orlando: Theme Parks (eg. Disney) and Tourism

Problem 4

The assessed risk is likely to include some real-estate specific risk if the investors are all primarily real estate. If the investors are all institutional investors, the only risk that matters is market risk or risk that cannot be diversified in a portfolio including financial and real assets.

Problem 5

I would do a traditional discounted cash flow valuation of the property and then apply a liquidity discount which will be higher for more illiquid assets.

Problem 6

	1	2	3	4	5	6
Revenues	\$ 3,307,500	\$ 3,969,000	\$ 4,688,381	\$ 4,922,800	\$ 5,168,940	\$ 5,324,009
- Var. Oper. Exp.	\$ 945,000	\$ 992,250	\$ 1,041,863	\$ 1,093,956	\$ 1,148,653	\$ 1,183,113
- Fixed Exp.	\$ 309,000	\$ 318,270	\$ 327,818	\$ 337,653	\$ 347,782	\$ 358,216
- RE Taxes	\$ 300,000	\$ 309,000	\$ 318,270	\$ 327,818	\$ 337,653	\$ 347,782
Taxable Income	\$ 1,753,500	\$ 2,349,480	\$ 3,000,431	\$ 3,163,374	\$ 3,334,852	\$ 3,434,898
- Taxes	\$ 736,470	\$ 986,782	\$ 1,260,181	\$ 1,328,617	\$ 1,400,638	\$ 1,442,657
Op. Inc after tax	\$ 1,017,030	\$ 1,362,698	\$ 1,740,250	\$ 1,834,757	\$ 1,934,214	\$ 1,992,241
Terminal Value					\$ 48,597,161	
PV at 7.10%	\$ 949,612	\$ 1,188,023	\$ 1,416,607	\$ 1,394,533	\$ 35,861,124	

Value of Building = \$ 40,809,899

Cost of Capital = $12.5\% (.3) + 8.25\% (1-.42) (.7) = 7.10\%$

b. Value of Equity in Building = $\$ 40,809,899 - .7(\$40,809,899) = \$ 12,242,970$

(I am assuming that there is no depreciation. If there is depreciation, you would add the present value of tax savings from depreciation to this value)

Problem 7

Property	Sale Price	Size (Sq. Ft)	Gross Rent	Sales/sq foot	Price/Rent
A	\$20,000,000	400,000	\$5,000,000	50.00	4.00
B	\$18,000,000	425,000	\$4,750,000	42.35	3.79
C	\$22,000,000	450,000	\$5,100,000	48.89	4.31
D	\$25,000,000	400,000	\$5,500,000	62.50	4.55
E	\$15,000,000	350,000	\$4,000,000	42.86	3.75
F	\$12,000,000	300,000	\$3,000,000	40.00	4.00
Average				47.77	4.07

a. Value based on Sales/sq foot = $300,000 * 47.77 = \$ 14,331,000$

b. Value based upon Price/Rent = $(300,000 * 1.05 * \$ 15 * .7) * 4.07 = \$ 13,461,525$

c. We are assuming that the comparable buildings are fairly priced and are similar to the building being valued.