REAL ESTATE
BUSINESS
PLAN

Background

- Story: We are prospective lessors that want to purchase a office building or apartment buildings in Orange County, CA

- Problem:
  - We want to know which building is more profitable?
  - How can we create a model that shows the profitability of the two buildings?
    - Decided T = 50 years → how long we hold the property

Background Data and Assumptions

Office Building Data

Purchasing price: Zillow
- $470 per sq. ft.
- Leasing for $35 sq. ft.

Vacancy rate: Commercial Cafe
- About 10%

Growth rate: Lee & Associates
- Normal distribution
- Mean: 0.04
- Standard deviation: 0.01

Apartment Building Data

Purchasing price: Redfin, Zillow
- Looked at avg cost of 2 bedroom 2 bath
- About $500,000

Rent: Zumper
- About $3,000

Maintenance cost: RoomImpact
- About $500

Growth rate: Spectrum News 1
- Rent increasing by 14%
- Mean: 0.14
- Standard deviation: 0.02

Intro to Model + Objective

Input for Office Building:

Input for Office Building		
Initial Purchase Price	p	$ 47,000,000.00
Square Foot of Office	sf	100,000.00
Sale Price/SF	sale.sf	470
Rent Price/SF	rent.sf	35
Office Vacancy Rate	v	0.1
Maintenance/SF	m.sf	5
Growth Rate	g	0.040232247
Discount Rate	r	0.085

Input for Apartment Building:

Input for Apartment Building		
Initial Purchase Price	pp	$ 50,000,000.00
# of Units	units	100
Sale Price/unit	sale.unit	500000
Rent Price/unit	rent.unit	3000
Maintenance/unit	m.unit	500
Growth Rate	g.unit	0.129527071
Discount Rate	r.unit	0.085

- Values are based on Orange County prices
- Growth rate g for Offices = NORM.INV(RAND(), 0.03, 0.02)
- Growth rate g for Apartments = NORM.INV(RAND(),0.14,0.02)
- Discount rate = 0.085 (average discount rate)

Model Construction

Year	Cash Flow	Discounted Cash Flow	Cumulative Cash Flow
1	$ 3,129,883.77	$ 2,884,685.50	$ 2,884,685.50
2	$ 3,298,374.55	$ 2,801,821.70	$ 5,686,507.20
3	$ 3,475,935.67	$ 2,721,338.19	$ 8,407,845.39
4	$ 3,663,055.44	$ 2,643,166.60	$ 11,051,011.99
5	$ 3,860,248.40	$ 2,567,240.53	$ 13,618,252.52
6	$ 4,068,056.84	$ 2,493,495.47	$ 16,111,747.99
7	$ 4,287,052.21	$ 2,421,868.76	$ 18,533,616.75
8	$ 4,517,836.74	$ 2,352,299.56	$ 20,885,916.31
9	$ 4,761,045.08	$ 2,284,728.77	$ 23,170,645.08
10	$ 5,017,346.03	$ 2,219,098.97	$ 25,389,744.05
11	$ 5,287,444.41	$ 2,155,354.42	$ 27,545,098.47
12	$ 5,572,082.98	$ 2,093,440.96	$ 29,638,539.43
13	$ 5,872,044.47	$ 2,033,305.99	$ 31,671,845.41
14	$ 6,188,153.76	$ 1,974,898.42	$ 33,646,743.83
15	$ 6,521,280.13	$ 1,918,168.63	$ 35,564,912.46
16	$ 6,872,339.68	$ 1,863,068.43	$ 37,427,980.89
17	$ 7,242,297.78	$ 1,809,551.00	$ 39,237,531.89
18	$ 7,632,171.80	$ 1,757,570.89	$ 40,995,102.78
19	$ 8,043,033.89	$ 1,707,083.93	$ 42,702,186.70
20	$ 8,476,013.87	$ 1,658,047.22	$ 44,360,233.92
21	$ 8,932,302.44	$ 1,610,419.12	$ 45,970,653.04
22	$ 9,413,154.35	$ 1,564,159.15	$ 47,534,812.19
23	$ 9,919,891.92	$ 1,519,228.02	$ 49,054,040.21
24	$ 10,453,908.65	$ 1,475,587.56	$ 50,529,627.77
25	$ 11,016,673.06	$ 1,433,200.68	$ 51,962,828.46
26	$ 11,609,732.73	$ 1,392,031.39	$ 53,354,859.85
27	$ 12,234,718.52	$ 1,352,044.70	$ 54,706,904.55
28	$ 12,893,349.13	$ 1,313,206.65	$ 56,020,111.20
29	$ 13,587,435.74	$ 1,275,484.24	$ 57,295,595.44
30	$ 14,318,887.06	$ 1,238,845.42	$ 58,534,440.85

- Cash flow for apartment = ((rent.unit * units) - (m.unit * units)) * (1 + g.unit)^G2
- Cash flow for office building = ((sf * rent.sf) - (m.sf * sf))*(1-v)*(1+g)^G2
- Discounted Cash Flow = (1 + discount rate) ^ year
  - = @Cash_Flow/(1+r_)^G2
- Cumulative Cash Flow = Σ Discounted Cash Flow

Output

- Breakeven year = MATCH(initialpurchaseprice, Cumulative Cash Flow)
- Total Profit = Cumulative Cash Flow @ Year 50 - Initial Purchase Price
- Profit percentage = Cumulative Cash Flow @ Year 50 / Initial Purchase Price

Output	
Breakeven Year	45
Total Profit	$ 21,109,865.02
Profit Percentage	142%

Simulation Results (Office)

Simulation for Office Building					
	profit.s	breakeven.s	growth.s	profit%.s	negative.s
1	$ 4,469,728.36	39	0.035562	109%	0
2	$ 10,275,723.84	32	0.041556	120%	0
3	$ 8,407,789.23	34	0.039723	116%	0
4	$ (9,461,739.71)	51	0.01625	82%	1
5	$ (6,187,021.95)	51	0.021621	88%	1
6	$ 26,900,049.18	25	0.054906	152%	0
7	$ (10,307,585.81)	51	0.014752	80%	1
8	$ 5,749,426.99	37	0.036962	111%	0
9	$ 6,633,551.34	36	0.037902	113%	0
10	$ 8,290,774.42	34	0.039606	116%	0
11	$ 7,060,503.90	35	0.038348	114%	0
12	$ (1,751,475.52)	51	0.027987	97%	1
13	$ 19,248,874.07	27	0.049332	137%	0
14	$ 7,349,164.22	35	0.038646	114%	0
15	$ 1,722,652.05	44	0.032386	103%	0
16	$ 2,328,238.94	43	0.033107	105%	0
17	$ 2,722,169.45	42	0.03357	105%	0
18	$ 10,640,902.25	32	0.041904	121%	0
19	$ 1,199,369.64	46	0.031752	102%	0

- Profit.s = cumulative cash flow at T=50 - initial purchase price
- Breakeven.s = Time T that profit > initial purchase price
- Growth.s = growth rate g
- profit %.s = cumulative cash flow at T=50/initial purchase price
- Negative.s = indicator if profit is negative

Average Profit	$ 9,744,480.40
Average Breakeven Year	35.977
Average Profit Percentage	119%
Negative %	0.163

Average Profit (Office Building)
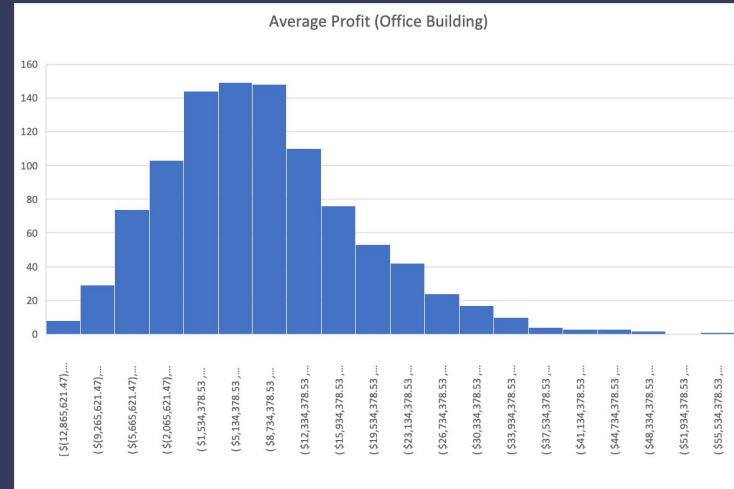
Simulation Results (Apartment)

Simulation for Apartment					
N	profit.s	breakeven.s	growth.s	profit%.s	negative.s
1	$ (15,741,995.34)	51	0.12773847	69%	1
2	$ 21,427,600.71	45	0.15179607	143%	0
3	$ 3,191,452.76	49	0.14235507	106%	0
4	$ (12,311,676.22)	51	0.1309717	75%	1
5	$ 12,351,025.58	47	0.14747341	125%	0
6	$ 27,349,144.00	44	0.15430772	155%	0
7	$ (12,894,977.51)	51	0.13044584	74%	1
8	$ 356,682,975.73	31	0.20429031	813%	0
9	$ 153,555,849.50	35	0.18386247	407%	0
10	$ 76,894,952.41	39	0.16961871	254%	0
11	$ 251,319.86	50	0.14050473	101%	0
12	$ (2,914,277.37)	51	0.13837445	94%	1
13	$ 1,446,827.81	50	0.14127109	103%	0
14	$ (31,183,749.24)	51	0.10637606	38%	1
15	$ (24,780,444.07)	51	0.11707323	50%	1
16	$ (38,245,180.31)	51	0.08779811	24%	1
17	$ 15,685,480.33	46	0.14913619	131%	0
18	$ 13,917,493.24	46	0.14826627	128%	0
19	$ (23,168,662.33)	51	0.11926911	54%	1
20	$ 87,549,240.20	38	0.1720708	275%	0
21	$ (24,900,685.87)	51	0.11690293	50%	1
22	$ 10,352,135.69	47	0.14642968	121%	0

Average Profit	$ 10,956,579.34
Average Breakeven Year	47.419
Average Profit Percentage	122%
Negative %	0.521

Average Profit (Apartment)
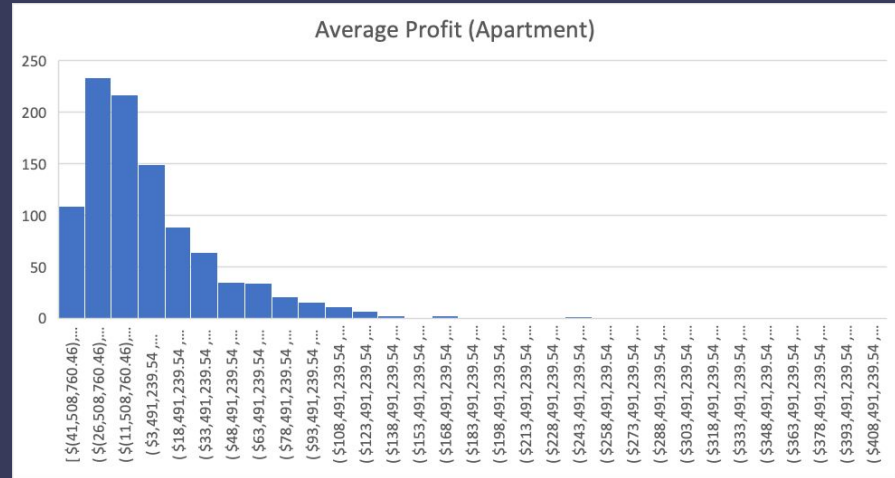
Findings

- Breakeven Years
  - Year 36 vs Year 48
  - 50 year holding time
- Profit Margins
  - 19% vs 22%
  - 15.8% higher for apartment building
- Negative Investments
  - 3.2x more likely to lose money

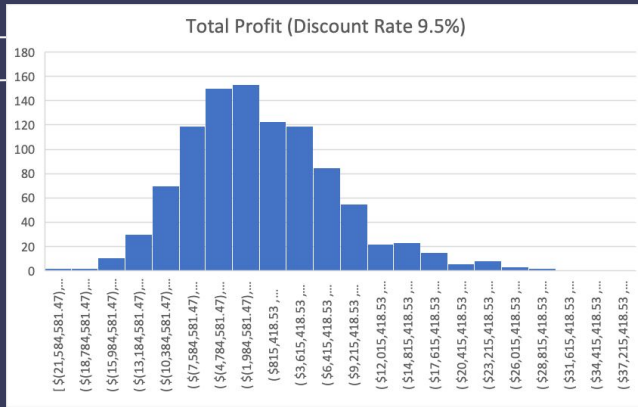|	Office	Apartment
Average Profit	$ 9,744,480.40	$ 10,956,579.34
Average Breakeven Year	35.977	47.419
Average Profit Percentage	119%	122%
Negative %	0.163	0.521

Conclusion + Recommendations

- Cash flows from our simulate model shows the benefits and risks of both potential investments

- Average profit margins of both investments we see an advantage in investing in apartment building

- Breakeven analysis shows that recouping our money will be achieved sooner if investing in office building than the apartment building

- Investing in apartment buildings has a much high risk of having a negative profit outcome

- If priority lies in risk minimization for your investment and achieve break even in an earlier period to invest in office building

- Ultimately, decision making can be affected by a multitude of factors, including social, economic, and environmental factors that can alter where we want to make our final investment.
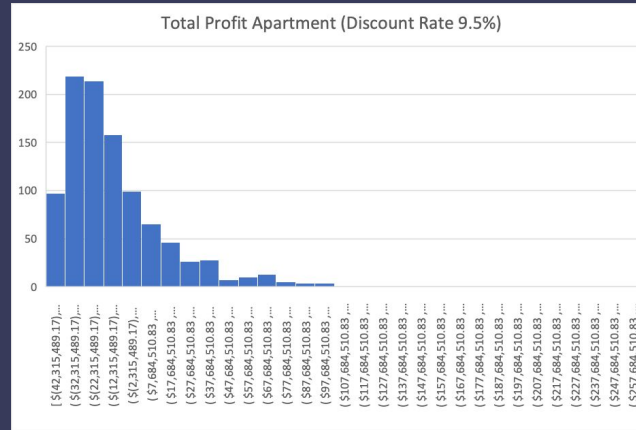
Question #1

What if the discount rate was raised to 9.5%? Would you still take on either project?

Office Building 9.5%:

Apartment 9.5%:

Total Profit (Discount Rate 9.5%)

Total Profit Apartment (Discount Rate 9.5%)

Though the average profit for the office building is still net positive, we would most likely not invest in either building because of the percentage of it being a negative investment. The upside is not great enough to justify investing in these buildings.

Office Building	
Average Profit	$ 1,072,021.23
Average Breakeven Year	44.066
Average Profit Percentage	102%
Negative %	0.486

| Apartment	
Average Profit	$ (6,381,744.84)
Average Breakeven Year	49.252
Average Profit Percentage	87%
Negative %	0.714

Question #2

With the rise of COVID-19, employers now allow their workers to work part time in the office, meaning that employers have a vacancy rate of 30%. Will this change make a difference in the end decision?

If the vacancy rate was raised to 30%, we would not purchase the office building because the average profit is negative and there is a far greater chance of the investment being negative.

If vacancy rate stayed at 30%, there is a greater chance we would invest in the apartment building.
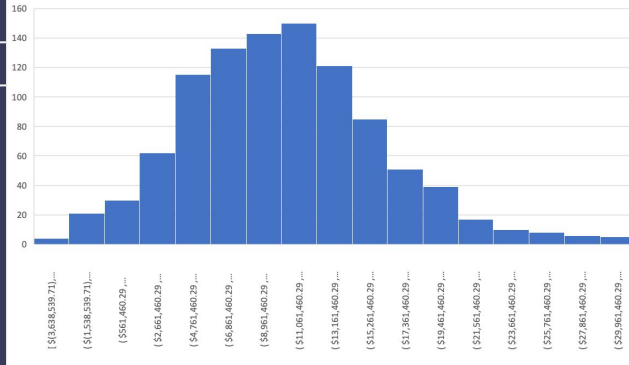

Average Profit (Office Building)
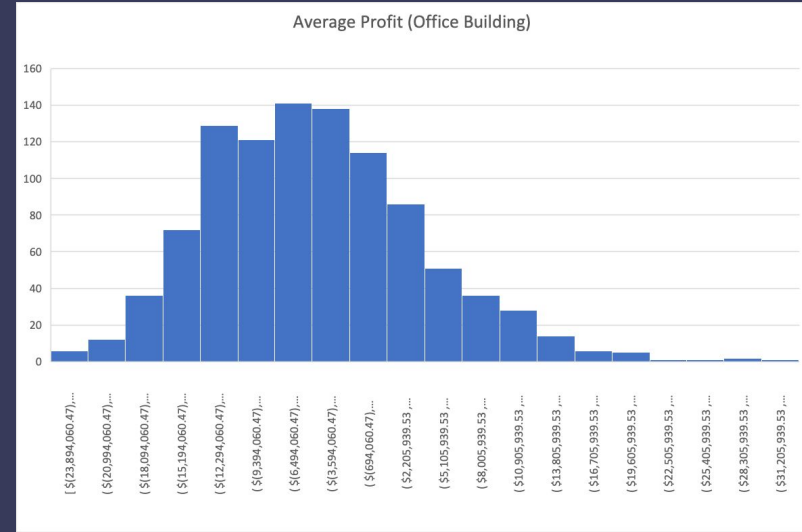
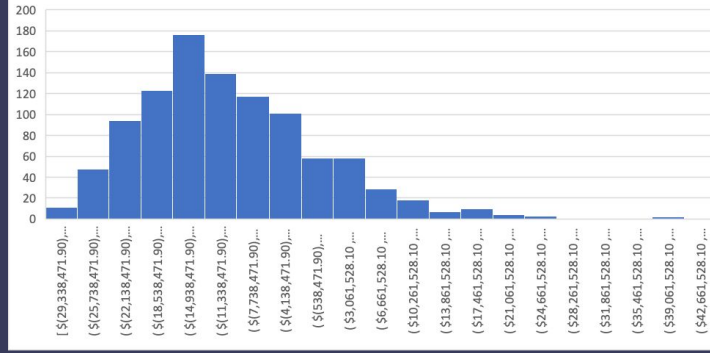| Average Profit	$ (3,340,595.25)
Average Breakeven Year	47.92
Average Profit Percentage	94%
Negative %	0.682

Question #3

Instead of purchasing the building all up front, you plan to mortgage half the cost of each building and pay the rest off over 30 years with a fixed interest rate of 5%. What is the expected profit after 30 years for each building?

Average Profit (Office Building)

Average Profit (Apartment)

Average Profit	$ 11,234,458.53
Average Breakeven Year	19.145
Average Profit Percentage	0%
Negative %	0.016

Average Profit	$ (8,496,699.94)
Average Breakeven Year	30.54
Average Profit Percentage	67%
Negative %	0.819

Over the 30 year period of the mortgage, it is clear that the office building has more profit initially. However growth rates for apartment buildings are generally higher so in a longer time period an apartment would be a better investment, assuming you can take the initial loss.

Thank You!