Professor Crocker H. Liu
Real Estate Finance

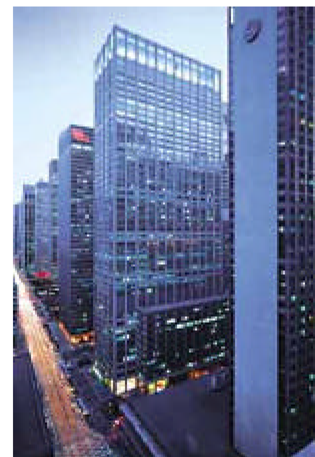
Revised: October 5, 2001

Problem Set 2: *Backdoor-Frontdoor*

Objective: The objective of this assignment is to introduce students to how developers and real estate investors such as the Reichmanns initially examine the financial feasibility of a deal. This is known in the trade as the "back of the envelope" approach. Alternatively, this method is referred to as the backdoor-frontdoor approach. The intuition underlying this static approach is that an investor seeks solvency (breakeven) in the short run and profitability in the long run.[1] It is also a useful method to test the initial cash flow assumptions that create the yield. This is important because if the initial cash flow in year one is faulty, by simply doing discounted cash flow analysis, an investor is first compounding the errors into the future and then discounting these errors back to the present. Consequently, a second objective of this problem set is to teach students how to stress test (perform sensitivity analysis) a deal from a static perspective.

Assignment: Please prepare a spreadsheet to answer the following questions. Please highlight your answers in yellow and turn in a hard copy of your results. In addition to this, turn in with your spreadsheet on a disk with your name on the disk so that we can check your work and also to make sure that you didn't copy someone else's assignment. ***This is an individual assignment***.

The deal: ***1301 Avenue of the Americas, NY, NY***. Located at the heart of the 6th Avenue/Rockefeller Center submarket of Midtown Manhattan. Occupies the west block of 6th Avenue between 52nd and 53rd streets.



Early in 2000, Tishman Speyer Properties and Sarofim Realty Advisors, who at the time owned 80 percent of the building located at 1301 Avenue of the Americas, attempted to sell their share to a German investment group for about $700 million. Credit Lyonnais, owners of the other 20 percent, used an option to buy the property instead, and then resold the 80% interest on August 3, 2000 to Equity Office Properties Trust (NYSE: EOP), in partnership with Lehman Brothers for approximately $715 million. The $715 million capitalization (calculated prior to closing costs and adjustments) includes approximately $550 million in mortgage debt (consisting of both first mortgage and mezzanine debt), equity retained by the existing owners of the property and additional capital funded by Lehman Brothers and EOP. The Class A 45-story office tower has over 1,765,000 rentable square feet with base floorplates of 67,700 square feet and tower floorplates of 29,400 square feet. The building

[1] This is the philosophy that used to be taught at the University of Wisconsin by the late Professor James A. Graaskamp, my mentor. Graaskamp coined the phrase backdoor-frontdoor.

is considered one of New York's top tier assets. A number of companies house their U.S. or global corporate headquarters at 1301 Avenue of the Americas, including: Credit Lyonnais and Pricewaterhouse Coopers. Other major tenants of the property include Wasserstein, Perella & Co. and Dewey Ballantine LLP. Equity Office will lease and manage the property.

<u>Property Statistics</u>:

Net Rentable Area: 1,765,000 square feet

Going-In Cap Rate[2]: 9.5% (general market)
Before Tax Cash on Cash: 12.5% (general market)

Financing Terms (Assume that these terms apply):
Amortization Period: 30 Years
Payments: Monthly
Term of Loan: 10 Years
Interest Rate: 7.25%

Asking rent per square foot of net rentable area: $69
Vacancy Rate: Assume 10% vacancy[3].
Operating expenses per square foot (excludes property taxes): $7.56
Property taxes per square foot: $9.00

1. <u>Frontdoor Approach</u> (50 points):

a. What was the required gross rent per square foot around the time of the sale to EOP assuming a 10% vacancy rate and using the loan to value ratio version of the front door approach? Is the deal financially feasible? Please explain.

b. What was the required gross rent per square foot around the time of the sale to EOP assuming a 10% vacancy rate and using the cap rate version of the front door approach? Is the deal financially feasible?

c. As of October 2002, the property had 480,648 square feet of net rentable area available for leasing. If the building initially had this much square feet vacant, what would have been the required gross rent per square foot using the cap rate version of the front door approach? Would the deal still have been financially feasible?

d. <u>Sensitivity Analysis</u>: Assume initially that the property had 480,648 square feet of net rentable area available for leasing as in part c. What would the purchase price have to

[2]This is the general market cap rate; not the actual cap that the property was purchased for
[3]At the time of sale, the building was 100% occupied.

be in order for the deal to be financially feasible all other variables remaining constant? Alternatively, what would the vacancy rate have to be for the deal to be financially feasible all other variables remaining constant (this means that the purchase price remains at $715M)? Finally, what would the going-in cap rate have to be for the deal to be financially feasible all other variables remaining constant?

2. <u>The Brothers Reichman and the Strategy of "More is More" (5 Points)</u>[4]: In an interview with Olympia and York's executive vice president Edward Minskoff,

> "Just how well the market adapts to rent increases is the determining factor in Olympia & York's planning for new developments. The go-ahead is very much a function of projected income exceeding projected costs. 'Before flashing the green light for a new project, the developer has to tally both hard and soft costs,' Minskoff explains. 'The former refers to expenses incurred on the actual construction work; the latter includes design, legal and accounting fees, marketing, expenses and so forth.
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> In New York today (1983), hard and soft costs to develop new properties range from $150 to $250 per square foot depending on the cost of the land. For argument's sake, let's figure $150 as the average cost. With financing at 15 percent, interest would be $22.50 per square foot, add another $7 per square foot for taxes and $7 for maintenance and you have a breakeven figure of $36.50 per square foot. Projected market rent levels will have to be at a minimum $38 to $40 per square foot level to make the development economically feasible. We also figure our rent adjustments this way. They should reflect replacement costs to develop similar buildings in the current market.
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> The same kind of thinking applies to property purchases, as well. One of the reasons we bought the Uris buildings was that calculations showed the asking price to be about a third of replacement costs. We'd have had to spend three times as much to build comparable properties.' "

Paul Reichman

Given what we have learned about the frontdoor and backdoor approaches, please discuss how the Reichmans approach compares to the approach in question #1 above. What is the implicit assumption(s) that is being made? Notable buildings that the Reichmans have developed include the World Financial Center and Canary Wharf.

3. <u>Backdoor using Debt Coverage Ratio Approach (20 points)</u>: What is the justified price per square foot of net rentable area for 1301 Avenue of the Americas assuming a 10% vacancy rate and a 1.35 debt service coverage ratio? Is the deal financially feasible from a backdoor perspective? Please explain? Would the deal still be financially feasible if the vacancy rate increased to having 480,648 square feet of net rentable area available for leasing (which is the current situation in 2002)?

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[4]from Mark Stevens, *Land Rush: The Secret World of Real Estate's Super Brokers & Developers*, 1984, McGraw-Hill

4. Backdoor using Default Point Approach (20 Points): What is the justified price per square foot of net rentable area for 1301 Avenue of the Americas assuming a 10% vacancy rate and a .80 breakeven ratio? Is the deal financially feasible from a backdoor perspective? Please explain? What would the default point have to be to equal the same required rent as the required rent obtained using a 1.35 debt coverage?

5. The Art of the Deal (5 Points): From a backdoor-frontdoor perspective, did Equity Office Properties whose CEO is Sam Zell make a good deal or bad deal in purchasing 1301 Avenue of the Americas in August 2000? Why or why not?

***Restatement of assignment*.** Please highlight your answers in yellow and turn in a hard copy of your results. In addition to this, turn in with your spreadsheet on a disk with your name on the disk so that we can check your work and also to make sure that you didn't copy someone else's assignment. ***This is an individual assignment*.**