Professor Crocker H. Liu Revised: December 22, 2006
Real Estate Capital Markets - Equity

Forecasting REIT Funds from Operations (FFO)

Objective: The objective of this assignment is to forecast the income statement and balance sheet and future financing requirements using an Excel spreadsheet. The percentage of sales method, which relates various (but not all) financial statement line items as a percentage of net sales, is the technique used. A second goal of this assignment is to familiarize students with REIT accounting principles and financial statement analysis.

Company: Boston Properties (NYSE ticker: BXP) is one of the largest owners, managers, and developers of Class A office properties with a major presence in four core markets: Boston, Washington, D.C., Midtown Manhattan and San Francisco. Founded in 1970 by Mortimer B. Zuckerman and Edward H. Linde, the company owns or has interests in a portfolio of 121 commercial real estate properties, including 117 office properties, 2 hotels, and 2 retail properties (as on December 31, 2005). Boston Properties focuses on high-demand cities where it is difficult to build--New York, Boston, Washington--and avoids office-glut towns like Atlanta and Chicago. The REIT further concentrates on Class A buildings, the leading addresses that classy tenants want. Although Boston Properties does buy existing properties, such as San Francisco's Embarcadero Center and 399 Park Ave in Manhattan (Citigroup Inc.'s headquarters; see picture on the right), its strategy has increasingly shifted towards building and renovation. It holds about 550 acres on which more than 9 million sq. ft. of space could be developed. To finance large acquisitions such as 399 Park Ave (purchased in 2002), BXP regularly sells select properties. The REIT also raises equity capital for projects via share offerings.

Competitors: Equity Office Properties (EOP), Mack-Cali (CLI), and Vornado (VNO),

Assignment: Download the spreadsheet FFOForecast07.xls and use the data in the workbook together with the assumptions at the end of this case to answer the following questions.

1. Income Statement for REIT Comparables and BXP (10 points): Using the **1. Income Stmt (Comps)** worksheet and the financial statements for EOP, CLI, VNO, and BXP, reconstruct the income statement for each REIT as well as the Peer Group aggregate (EOP + CLI + VNO) for various line items in income statement by filling in the area highlighted in yellow.

2. Balance Sheet for REIT Comparables and BXP (10 points): Using the **2. Balance Sheet (Comps)** worksheet and the financial statements for EOP, CLI, VNO, and BXP, reconstruct the balance sheet for each REIT as well as the Peer Group

aggregate (EOP + CLI + VNO) for various line items in balance sheet by filling in the area highlighted in yellow.

3. Margin Analysis (10 points): Using the results that you obtained in the preceding questions and the **3. Margin Analysis** worksheet, perform a margin analysis e.g., calculate the appropriate ratios for the years given by filling in the area highlighted in yellow for each REIT and the Peer Group.

4. Projecting "Other Assets" for the Next Two years (5 points): Using the information given in the **4. Calc (Other Assets)** worksheet, generate an XY(Scatter) graph. Next, add a trendline to the graph by right-clicking on the scatterplot dots → selecting **Add Trendline…** → Under the tab, **Type** click on **Linear** → click on the **Options** tab and select the boxes labeled **Display equation on chart** and **Display R-squared value on chart** → click on the **OK** button. Using the equation, forecast the dollar amount of "Other Assets" for year 2006 and year 2007. The X (independent variable) in the equation is time where X = 8 for year 2006 and X = 9 for year 2007.

5. Forecasting Financial Statements (65 points). Using the worksheet labeled "**5. Forecast of Fin Stmt (BXP)**", please complete the following

   a. Assumption Box and Forecasting FFO (60 points): Fill in the numbers for 12/31/2005 and also the assumptions (see the last page of this handout for the forecasting assumptions). The area to be filled in is highlighted in yellow. Next, forecast the income statement and balance sheet for 12/31/2006 and 12/31/2007 using the assumptions given in conjunction with the numbers for 12/31/2005. Also assume that Boston Properties will maintain a 60% Debt to Total Capital ratio (assume that this is their target capital structure). After you have finished forecasting net income and funds from operations (FFO), calculate the FFO per share (EPS) for BXP. How close are your FFO estimates to those of Wall Street analysts using the "**Analysts FFO (BXP)**" worksheet? Is it within the Maximum and Minimum range of analysts' forecasts?

   b. Sensitivity Analysis (5 points): Given your forecasted FFO per share for 2006 and 2007, use the Data Table command in Excel to perform a FFO sensitivity analysis based on changes in the growth rate in base rent. Please round your answer to two decimal places.

Please hand in a hardcopy of your answers. This is an individual assignment. Anyone caught cheating will be given an automatic F on this project.

Assumptions Used in Forecasting Financial Statements:

Line Item	Assumption
Date of analysis	Assume that this analysis is performed on 3/1/2006
Base Rent (growth rate)	Base rent is expected to decline by -1% in Year 2006 and then increase by +1.5% in Year 2007
Tenant Reimbursements	Recoveries from tenants are projected to be 15.5% of Base Rent per annum.
Parking and Other Income	Given the decline nature of parking income relative to base rent, income from parking and other real estate related activities is assumed to be 4.8% of base rent.
Hotel Revenue (000s)	Hotel revenue is anticipated to remain constant at $72,000 per year
Non-Operating Income & Operating Income from non-real estate activities (000s)	Income from non-operating activities and non-real estate activities are expected to remain at $30,000 annually.
Rental expense	Rental expense in real estate is analogous to cost of goods sold (COGs) for a regular firm. Analysts are expecting rental expense as a percent of base rent to increase to 40.5% from a prior level of 39.5% in 2005
Hotel expense	Hotel expense is 75% of hotel revenue per year
General and administrative expense	This category is referred to as Selling, General & Admin (SGA) for a typical corporation. SGA is assumed to remain at 5% of base rent per year.
Non-Operating Expenses (excluding General and administrative expenses)	No non-operating expenses are expected to be incurred near term.
Depreciation and Amortization (000s)	$276,579 (Year 2006) and $289,079 (Year 2007)
Real estate depreciation and amortization (000s)	$282,127 (Year 2006) and $289,079 (Year 2007)
Amortization of deferred fin costs and prepayment expenses (000s)	No amortization of deferred financing costs and prepayment expenses is expected to be incurred near term.

Assumptions Used in Forecasting Financial Statements:

Line Item	Assumption
Interest rate on existing debt	Balance / Percent of total debt / Interest rate Fixed rate: \$3,952,151 / 81.89% / 6.70% Variable rate: 874,103 / 18.11% / 4.96% Take the weighted average interest rate and assume that this rate remains constant over the next 2 years. This is the information that was reported in the 2005 10-K for Boston Properties.
Interest rate on new debt	Use the yield on a 10 year Treasury Bond + default spread for BXP based on it's Moodys/S&P Bond Rating. Since we assume that BXP's debt has a 10 year maturity, both the Treasury bond and the default spread are for 10 years. The bond rating for BXP is found in the “Bond Ratings (BXP)” worksheet while the “BondSpreads 20061211” worksheet contains the default spread and the “TreasuryRates 20061211” worksheet reports the yields on Treasury Bonds[1].
Short term debt (Debt Maturing)	This is debt that matures in one year. For debt maturing in each year, please refer to the “Debt Maturity (BXP)” worksheet.
Long Term Debt (existing)	Existing Long Term Debt_{T-1} – Short Term Debt_{T} Existing long term debt at the beginning of the period (same as existing long term debt at the end of the last period) subtracted from current short term debt (debt maturing in the current period).
Long term debt (from all sources: existing + new debt)	Assume that BXP has a target capital structure with 60% Debt to Total Capital ratio. Total Capital = Debt + Shareholders Equity. ***Hint***: you will have to use this target capital structure in conjunction with shareholder equity and adjust the total debt amount by short term debt per period. If a firm is at its target ratio, then this assumes that the firm will use the same fixed proportion of debt to equity in financing all of their future projects. For example, it a firm’s Debt to Total capital ratio is 2.5%, this means that for each dollar of equity that they use to finance their project, they will use \$.0256 of debt e.g. Debt = (.025/.975)*Equity.[2]

[1]When this case was written, we could not access historical default spread matrices and so we are using 12/11/2006 default spreads and Treasury rates even though we assume that this analysis is as of March 1, 2006.

[2] Debt = .025*(Debt + Equity) = .025*Debt + .025*Equity ⇒ Debt - .025*Debt = .025*Equity
⇒ .975*Debt = .025*Equity ⇒ Debt = (.025/.975)*Equity = .0256*Equity

Assumptions Used in Forecasting Financial Statements:

<table>
<tr><th>Line Item</th><th>Assumption</th></tr>
<tr><td>Unsecured line of credit (000s)</td><td>$60,000 per year</td></tr>
<tr><td>Income from unconsolidated joint ventures</td><td>$25,594 (Year 2006) and $10,982 (Year 2007)</td></tr>
<tr><td>Minority interests in property partnerships</td><td>Assumed to equal zero. Note: typically as quarterly financial statements (10-Q) are released, the minority interests in property partnerships contained in each 10-Q are used to update the forward estimates (in this case 2006 and 2007)</td></tr>
<tr><td>Minority interest in Operating Partnership (000s)</td><td>-66,103 (Year 2006) and -76,554 (Year 2007)</td></tr>
<tr><td>Marginal tax rate</td><td>Zero; BXP has not paid any taxes since it doesn’t have a tax related subsidiary.</td></tr>
<tr><td>Gains on sales of real estate and other assets, net of MI</td><td rowspan="7">Assumed to equal zero. Note: typically as a quarterly financial statement (10-Q) or an 8-K is released, the minority interests in property partnerships contained in each 10-Q or 8-K is used to update the forward estimates (in this case 2006 and 2007)</td></tr>
<tr><td>Income from discontinued operations, net of minority interest</td></tr>
<tr><td>Gains on sales of R.E. from discontinued operations, net of minority interest (MI)</td></tr>
<tr><td>Cumulative effect of a change in accounting principle, net of MI</td></tr>
<tr><td>Losses from early extinguishments of debt associated with R.E. sales</td></tr>
<tr><td>Net derivative losses (SFAS No. 133)</td></tr>
<tr><td>Early surrender lease adjustment</td></tr>
<tr><td>Minority interests in property partnerships' share of funds from operations (000s)</td><td>Assumed to equal zero in 2006 and 2007</td></tr>
<tr><td>Minority interest in Operating Partnership’s share of funds from operations (000s)</td><td>$96,013 (Year 2006) and $102,752 (Year 2007)</td></tr>
<tr><td>Preferred dividends</td><td>No preferred dividends only preferred distributions</td></tr>
<tr><td>Preferred distributions (000s)</td><td>$9,899 (Year 2006) and $7,648 (Year 2007)</td></tr>
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Assumptions Used in Forecasting Financial Statements:

Line Item	Assumption
Dividends on common stock (Regular dividends declared on common)	Regular dividends declared on common are 60% of funds from operations (FFO). This is the payout ratio.
Cash and cash equivalents (000s)	Assume that BXP maintains $300,000 in cash and cash equivalents each year going forward
Cash held in escrows (also known as Restricted Cash)	Restricted cash is 2.3% of Base Rent per year
Real estate, net (000s)	Is the "**Plug**" e.g. the balance sheet item that "closes" the model. In other words, it makes Assets = Liabilities + Equity. To obtain the amount of real estate, net of accumulated depreciation and amortization (the plug), since Total Assets = Total Liabilities + Equity, it follows that Real Estate, net = Total liabilities and stockholders' equity - Cash and cash equivalents - Cash held in escrows - Other Assets
Other Assets (000s)	Use your answer from the "4. Calc (Other Assets)" worksheet. See question 4. Projecting "Other Assets" for the Next Two years on page 2 of this case study.
Current Liabilities (000s)	Current liabilities are 24% of Base Rent in 2006 and 2007.
Other Long Term Liabilities (000s)	includes Other liabilities & Minority Interest; use the number for Year 2005 and assume that this amount remains constant for years 2006 and 2007
Total stockholders' equity (000s)	Increases in each period by Net income available to common shareholders minus Common dividends declared (dividends on common stock). Equity_T = Equity_{T-1} + Net Income_T – $\text{Common Dividends}_T$.
Weighted average shares/units outstanding – basic (000s)	111,274 shares. Assume that the number of shares remains constant during 2006 and 2007.

Note: If there is a -- in a particular cell of your data spreadsheet, set it equal to zero e.g., -- = 0.