FIGURE 11.2

Build to x% Return* Calculation
Build to x% Return = Projected Stabilized NOI / Projected Total Costs
Build to a 10% = $15.00 per GSF / $150.00 per GSF

** Alternately referred to as the Yield on Cost, Return on Cost, or the Going in Cap Rate*

What NOI can you expect from the property? The key top line component of NOI is expected rental income, which is primarily determined by market conditions. Unless this is an enormous project, you will probably not significantly impact market rent. But remember that your building adds to market supply and will itself place some downward pressure on market rents. Assume that based on your knowledge of the local market, you determine the expected rent (i.e., "market rent") is $30 per leasable square foot (LSF) per year (office, retail and industrial rents are typically quoted on this annual basis, except in California where monthly rents are quoted). However, you must adjust the rent per leasable square foot to reflect vacant space to get to an **effective rent per leasable square foot**. As shown in Figure 11.3, assuming a 5% vacancy rate (95% occupancy rate) upon stabilization, you estimate effective rental income of $28.50 per leasable square foot by multiplying $30 per leasable square foot by 95%. Ancillary income (not shown in this calculation) derived from rooftop billboards, cellular signal antennas, parking, and vending machines must also be included if it is expected to be a major source of revenue. Remember, the higher your stabilized vacancy, the fewer people in the building to contribute to ancillary income.

FIGURE 11.3

Effective Rent per Leasable Square Foot Calculation
Effective Rent per Leasable SF = Market Rent per Leasable SF * (1 – Stabilized Vacancy %)
= $30.00 * (1 – .05) = $28.50

Based upon your knowledge of local operating costs (utilities, repairs and maintenance, real estate taxes, insurance), you estimate annual operating costs net of tenant recoveries of approximately $10 per gross square foot. That is, you will have to pay roughly $10 per building square foot even if the space is vacant as you must pay real estate taxes, insurance, snow removal, and other costs regardless of whether or not the property is fully occupied. For consistency in calculating NOI per square foot, you must convert rent per leased square foot to rent per gross square foot. If only 70% of the property is leasable (due to the 30% loss factor), a $28.50 rent per leased square foot is equivalent to $19.95 in **effective rent per gross square foot**, as shown in Figure 11.4.

FIGURE 11.4

Converting Effective Rent per Leasable Square Foot to Effective Rent per Gross Square Foot
Effective Rent per Gross SF = Effective Rent per Leasable SF * (1 – Loss Factor %) = $28.50 * (1 – 0.30) = $19.95 per GSF

As shown in Figure 11.5, with expected effective rent per gross square foot income of $19.95 and expected operating costs net of recoveries of $10 per gross square foot, you expect stabilized NOI per gross square foot of $9.95. This implies an expected **yield on total development cost** ("yield on cost"; the build to return) of 6.63% (i.e., $9.95 / $150).

FIGURE 11.5

Stabilized NOI per Gross Square Foot Calculation
Stabilized NOI per GSF = Rental Revenues per GSF – Operating Costs per GSF = $19.95 PSF – $10.00 PSF = $9.95 PSF

Does this project pass an initial examination? Not if you require a 10% stabilized NOI return on cost to compensate for taking on development risks. Based on this simple yield on cost analysis (Figure 11.6), the project does not offer enough potential return to make it worth the risk (i.e., It does not pencil).

FIGURE 11.6

Expected Yield on Total Development Cost Calculation
Expected Yield on Cost = Expected Stabilized NOI / Expected Total Costs = $9.95 / $150.00 = 6.63%, which is less than the required 10.00%

If you undertake the project, you expect an unacceptable compensation for the development risks. Stated bluntly, why would you take on all of the risks of development, when based on your market analysis you know you can buy comparable existing stabilized buildings for an 8-8.5 cap? By the way, note that this analysis took you less time than you need to warm up your PC for a full spreadsheet analysis.

SOLVE BACKWARDS FOR REPLACEMENT RENT

How high does the market rent have to be for the Muk Office Plaza to be potentially viable? You can solve backwards for this **replacement rent** per gross square foot, as well as its equivalent per leased square foot.

Since stabilized NOI must equal $15 per gross square foot for you to receive a 10% return on total costs of $150 per gross square foot, market rents per gross foot must rise to $25 if expected operating costs are $10 per gross square foot. This back solving is shown in Figure 11.7.

FIGURE 11.7

Replacement Rent per Gross Square Foot Calculation
Replacement Rent per GSF = (Build to Return * Expected Total Cost) + Expected Operating Costs
= (10% * $150.00) + $10.00 = $15.00 + $10.00 = $25.00 per GSF

How does replacement rent per gross square foot translate into replacement rent per leased square foot? Think about it as having to still generate the same NOI for your required yield on cost, but the NOI derives from fewer square feet. Algebraically, the numerator (NOI) is the same, but the denominator is leased square feet, which is a subset of gross square feet and leasable square feet. Dividing the same NOI by a smaller square footage value naturally yields a larger rent per leased square foot than rent per gross square foot.

As Muk Office Plaza is 100,000 gross square feet, we know that total required projected rent is $2.5 million ($25 per GSF * 100,000 GSF). Since 30% (or 30,000 gross square feet) of the building is unleasable and another 5% of the leasable space (3,500 square feet) is assumed to be vacant, then total leased space is 66,500 square feet (100,000 – 30,000 – 3,500). Therefore, rent per leased square foot must be $37.59 ($2.5 MM / 66,500) for the expected return on costs to be 10%. A more elegant way of calculating this conversion is shown in Figure 11.8.

FIGURE 11.8

Replacement Rent per Leasable Square Foot Calculation
Replacement Rent per Leasable Square Foot = Replacement Rent per GSF * (1 / (1 – Loss Factor)) * (1 / (1 – Vacancy))
= $25.00 * (1 / (1 – 0.3)) * (1 / (1 – 0.05)) = $37.59 per Leasable Square Foot

Since the replacement rent per leasable square foot must be at least $37.59 for the project to generate your required returns, current market rents of $30.00 PSF must rise by roughly 25% before replacement rent is achieved. If rents rise 3% per annum, this will take 7.6 years to achieve. Of course, since operating costs, rent, construction costs, and other factors change daily, while $37.59 per leasable square foot may be sufficient to justify development today, it may not be adequate tomorrow. As a result, developers regularly re-evaluate projects to determine their feasibility.

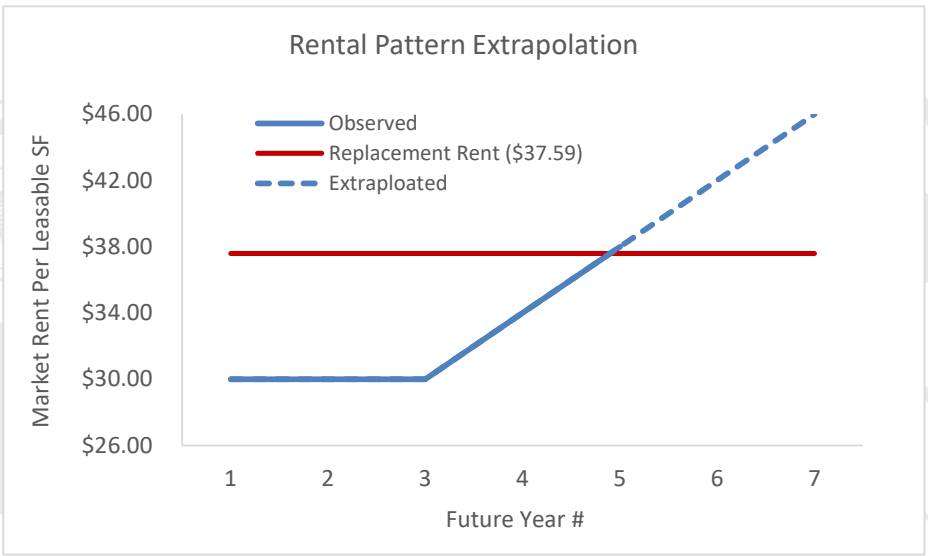
This simple feasibility analysis is fast and accurate and with a little practice, can be done in your head. If your spreadsheets produce significantly different results from this analysis, carefully check the rows and columns,

as there is something wrong in them. This analysis saves you the time and trouble of performing the detailed analysis, which if done correctly in this example, will only confirm that you cannot remotely achieve your desired profitability given current market conditions.

A COMMON MISTAKE

Avoid simply **trending** recent rental data points (i.e., extrapolating them at the same slope) when conducting feasibility analysis. Developers frequently lose sight of the fact that rent is driven by supply and demand fundamentals rather than trend lines. Look at Figure 11.9 and assume that you passed on our example development in Year 2 because you felt that the $30 market rent was too low. You continue to monitor rents over the next several years, and the pattern shown evolves.

FIGURE 11.9



Specifically, after flat rents of $30 per leasable foot in Years 1 through 3, as the economy picked up, rents rose to $34 in Year 4 and to $38 in Year 5. While rents in Year 4 remained too low to justify development, Year 5 rents had risen above replacement rent.

Looking at this rental trend (in early Year 5), you might infer that since market rent increased by $8 per square foot over the past two years, or by 26.7%, while contemporaneous inflation was only about 2-3% per year, this must be a strong market with great rental growth potential. You project continued rental growth through Year 7, as indicated by the dashed line. Forecasting market rent of $42 per square foot in Year 6 and $46 per square foot in Year 7, you conclude that if you start development now (early Year 5), you will receive rent of roughly $46 per leasable square foot upon completion in Year 7. This forecasted market rent is well in excess of the $37.59 per leasable square foot required to justify new construction. Deciding it is time to build, you note that if necessary, you can pay more than the $30 per gross building square foot for the land you originally assumed and still generate your 10% target return.

Does this analysis make sense? Of course not. Once rents rise above replacement rent, developers will do what they do best: Develop! Just as you see development opportunity, so too will other developers. If it makes sense for you to build, it will make sense for others as well. Thus, as demand growth pushes rents above replacement rent, supply will increase with a lag. As this new space comes online, rents will tend to revert to replacement rent,

rather than continue the upward trend. To believe that rents will continue to rise well beyond replacement rent ignores the basics of supply and demand. In fact, if enough developers use this faulty analysis to justify development, excessive development will occur, and rents will fall below replacement rent.

Figures 11.10 and 11.11 depict realistic potential rental rate growth outcomes. Note that rental rate growth should taper off as rents approach replacement rent. Figure 11.10 shows an overshoot of rents as supply lags demand, with reversion to replacement rent, while Figure 11.11 shows an overshoot of rents followed by a decline to below replacement rent due to excessive development, with ultimate reversion to replacement rent.

FIGURE 11.10

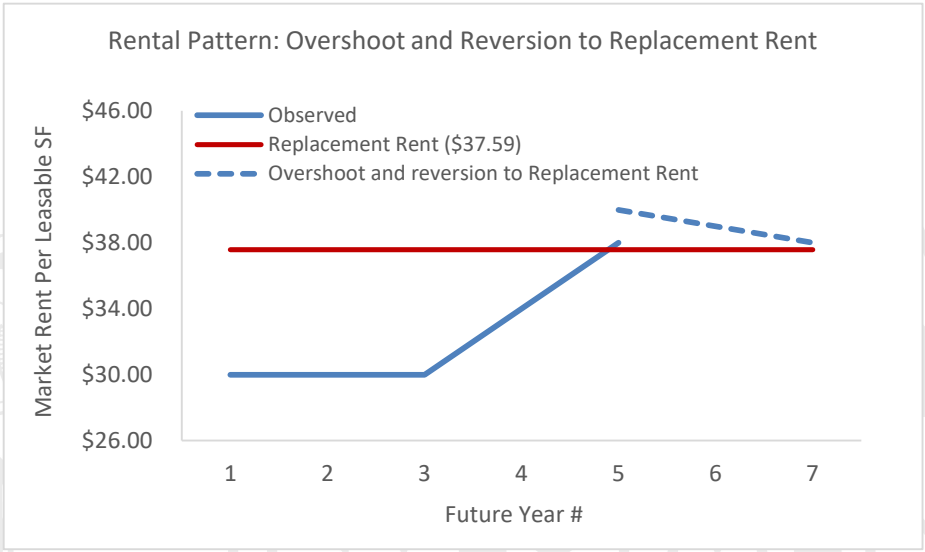


FIGURE 11.11