APPENDIX 10B

METHOD TO ESTIMATE INTERLEASE DISCOUNT RATES

As noted, the tenant's borrowing rate is usually an appropriate indicator of the opportunity cost of capital for the intralease discount rate. But how can we determine the interlease discount rate? Here is a simple approach that will give a useful approximation, based on other information that is often observable in property investment markets. Suppose, for example, that properties similar to the subject property are selling in the asset market at cap rates of 7 percent. Suppose further that rents and property values tend to grow (for the same buildings) at a rate of about 1 percent per year over the long run.[1] Finally, suppose the rental market is characterized by five-year leases and tenants who typically pay about 6 percent interest on five-year loans, thus indicating a typical market intralease discount rate of 6 percent.[2] Then we can "back out" the market's implied interlease discount rate using a simple stylized model of the typical space in the market, such as the following.

The present value of a lease (with payments in arrears), as of the time of its signing, per dollar of initial net rent, assuming annual net rent step-ups of 1 percent, is seen to be $4.29, as follows:[3]

$$\frac{\$1}{1.06}+\frac{(1.01)\$1}{1.06^2}+\cdots+\frac{(1.01)^4\$1}{1.06^5}=\frac{(\$1/1.06)\left[1-\left(\frac{1.01}{1.06}\right)^5\right]}{1-\left(\frac{1.01}{1.06}\right)}=\$4.29$$

A stylized space may be conceptualized as a perpetual series of such leases, with the subsequent ones (after the first or current lease) not yet having been signed. The value of the space, S, would then be the value of this future stream of leases discounted at the *interlease* discount rate (as the future leases have not yet been signed). Label the interlease discount rate r:[4]

$$S=\$4.29+\left(\frac{1.01}{1+r}\right)^5\$4.29+\left(\frac{1.01}{1+r}\right)^{10}\$4.29+\cdots$$

This is a perpetual geometric series whose first term is $4.29 and whose common ratio is $[(1.01/(1)+r)]^5$. Thus, we can shortcut this value, per dollar of the space's initial net rent, as:[5]

$$S=\frac{\$4.29}{1-\left(\frac{1.01}{1+r}\right)^5}$$

[1]In the absence of other information, this could be estimated as the long-term inflation rate as indicated by the difference between long-term government bond yields and the yields on otherwise similar inflation-protected government bonds, less an expected long-term average structural real depreciation rate of, say, 1% to 2% per year.

[2]This could be estimated from typical prevailing commercial lending rates.

[3]This is just an application of the general geometric series formula presented in Chapter 8. In particular, we are applying formula (6a) of section 8.2.1, where the first term is $a = 1/1.06$, the common ratio is $d = 1.01/1.06$, and the number of terms is $N = 5$.

[4]This model assumes the first lease has already been signed in the present. Otherwise, the solution is a more complex polynomial that must be solved numerically. The approach presented here will suffice to establish a plausible relationship between the interlease discount rate and the other more directly observable market parameters.

[5]Again employing the geometric series formula from Chapter 8, namely, formula (6b) with $a = \$4.29$ and $d = [1.01/(1)+r)]^5$.

But we also know that the value of a typical space per dollar of initial net rent, based on the market's prevailing cap rate of 7 percent, is:

$$S = \frac{\$1}{0.07}$$

Putting these two valuation models together, we obtain an equation that we can solve for the unknown interlease discount rate, r:

$$\frac{\$1}{0.07} = \frac{\$4.29}{1 - \left(\frac{1.01}{1+r}\right)^5}$$
$$\Rightarrow r = 1.01/[1 - 0.07(\$4.29)]^{1/5} - 1 = 8.48\%$$

Note that while the interlease rate of 8.48 percent is almost 250 basis points greater than the intra-lease rate of 6 percent, it is less than 50 basis points greater than the 8 percent blended going-in IRR discount rate as similarly modeled based on the market cap rate of 7 percent and the long-term growth rate of 1 percent.[6] In Chapter 29, we shall argue that this difference between the interlease discount implied by the market and the market's required going-in blended IRR for a stabilized property may be used as at least a lower-bound indication of the implied "lease-up risk premium" (see Section 29.3.2). The procedure described here allows an estimate of the market's implied interlease discount rate given knowledge of the cap rates, tenant borrowing rates, lease terms, and long-term average growth rate in rents, within the relevant property market. The premium of the interlease rate over the blended rate will be greater, other things being equal, when the lease terms are longer and the tenants' borrowing rates (intralease discount rates) are farther below the blended rate. Low implied interlease rate premiums suggest that the market perceives little systematic risk in the unknowns associated with lease-up.

[6]The market's blended going-in IRR for our stylized space is found by solving the following equation, whose left-hand side reflects the market cap rate, and whose right-hand side reflects the DCF of the projected future rents, which are a constant-growth perpetuity [recall formula (6b) or formula (10) from Chapter 8]:

$$\frac{\$1}{0.07} = \frac{\$1}{1+IRR} + \frac{(1.01)\$1}{(1+IRR)^2} + \frac{(1.01)^2\$1}{(1+IRR)^3} + \cdots = \frac{\$1}{IRR - 0.01}$$