New Century Cities:
"The Real Estate Developer Value Proposition"

David Geltner, Tony Ciochetti
MIT/CRE Director
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To get capital in the private sector, you need to be able to pay the cost of the capital:

"Opportunity Cost of Capital"
(OCC)

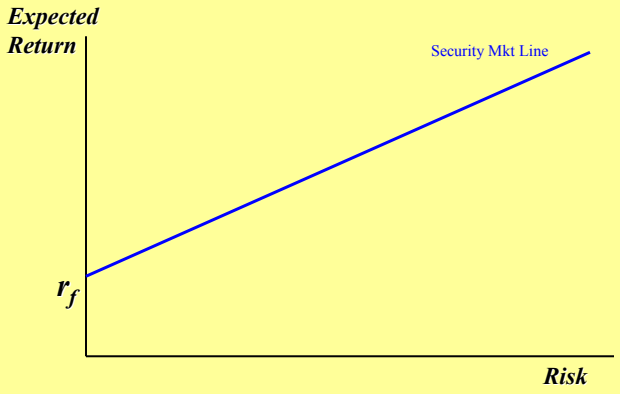
(What investors could expect to earn on alternative investments of similar risk to the subject investment.)

This cost is determined by supply & demand (equilibrium) within the:

Capital Markets

Including (but not limited to) the property asset market as a branch of the capital markets.

Investors (capital suppliers) are risk-averse, require higher expected returns in more risky investments . . .



What is the Opportunity Cost of Capital?...

Disc. Rate = Required Return

= Oppty. Cost of Capital

= *Expected total return*

$= r$

$= r_f + RP$

$= y + g = curr.income + growth$

among investors in the market today

for assets similar in risk to the property in question.

A real world example . . .

1 Lincoln St:

State St Bank Bldg

(orig:

One Lincoln Ctr)

Development project investment analysis, as of early 2000.

Example of the ***r = y + g*** approach:

Boston Class A CBD office mkt 2000:

(Analysis for One Lincoln Ctr Project…)

- Sales comps cap rates ranged from 6.9% to 7.8%; We picked: ***y*** = 7.0% (looking at recent trend).
- Historical rental growth analysis: ***g*** = Historical rental mkt growth rate – Historical inflation + Realistic projected future inflation – Property real depreciation rate.
- For Boston CBD Class A Office Mkt (based on 1987-99, *peak-to-peak in cycle*):
  g = 2.6% - 3.2% + 2.5% - 0.9% = ***1.0%***
- ➔ CBD Boston Class A office OCC (1999) = ***y + g*** = ***7.0% + 1.0% = 8.0%.***
- Checking: In 2000, T-Bill yield = 5.5%, ➔ ***RP*** = 8% - 5.5% = ***2.5%*** (OK for institutional R.E. in Boston).

Evidence of Boston CBD Class A office property asset mkt cap rates at time of 1 Lincoln investment decision (2000):

Exhibit 2

Boston Office Market: Recent Building Sales

Building	Year Built/ Rehabbed	Floors	Rentable Area	Sale Date	% Leased	Buyer	Seller	Price	Price/SF	Cap Rate
One Boston Place	1970	41	779,000	Dec-99	95%	Gerald Hines Interests	Lend Lease	$200,000,000	$257	7.75%
99 High Street	1971	32	731,000	Dec-99	99%	Boston Capital	Keystone-Centrose Associates	168,500,000	231	7.71%
75 State Street	1988	31	770,000	Oct-98	100%	World Financial Properties	Lend Lease	311,000,000	404	7.40%
745 Atlantic Atlantic	1987	11	168,000	Oct-99	100%	Lend Lease	Tishman Speyer	39,500,000	235	7.00%
399 Boylston Street	1983	13	255,000	Nov-98	90%	CentreMark	Met Life	52,000,000	204	7.50%
265 Franklin Street	1985	20	329,000	Apr-99	100%	Westbrook Ptrs / Divco West	Shuwa Investments	70,000,000	213	7.70%
260 Franklin Street	1985	23	349,000	Jan-00	100%	Heitman / State of Florida	JMB / TIAA	76,000,000	218	7.00%
125 High Street (1)	1990	30	1,438,000	May-99	100%	Jamestown	Tishman Speyer	496,600,000	345	7.75%
116 Huntington Avenue	1990	15	261,000	Jun-99	100%	IDX Partners	IDX	55,200,000	211	6.95%
100 Summer Street	1974	32	1,020,000	Mar-98	80%	Equity Office Properties	Blue Cross Blue Shield / Emerik	225,000,000	221	7.50%
Totals / Averages			6,100,000					$1,693,800,000	$278	7.43%

Note: (1) 76% ownership interest.

Average suggests 7.0% cap rate.

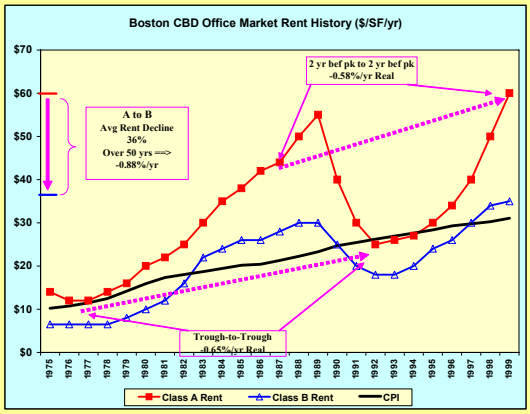
One Lincoln Center Project: Projected Rental Growth Rate Analysis (2000)

Boston CBD Office Market Rent History ($/SF/yr)

Year	Class A Rent	Class B Rent	CPI	CPI inflation
1975	$14.00	$6.50	$10.25	7.01%
1976	$12.00	$6.50	$10.74	4.81%
1977	$12.00	$6.50	$11.47	6.77%
1978	$14.00	$6.50	$12.51	9.03%
1979	$16.00	$8.00	$14.17	13.31%
1980	$20.00	$10.00	$15.93	12.40%
1981	$22.00	$12.00	$17.35	8.94%
1982	$25.00	$16.00	$18.02	3.87%
1983	$30.00	$22.00	$18.71	3.80%
1984	$35.00	$24.00	$19.45	3.95%
1985	$38.00	$26.00	$20.18	3.77%
1986	$42.00	$26.00	$20.41	1.13%
1987	$44.00	$28.00	$21.31	4.41%
1988	$50.00	$30.00	$22.25	4.42%
1989	$55.00	$30.00	$23.28	4.65%
1990	$40.00	$25.00	$24.70	6.11%
1991	$30.00	$20.00	$25.46	3.06%
1992	$25.00	$18.00	$26.20	2.90%
1993	$26.00	$18.00	$26.92	2.75%
1994	$27.00	$20.00	$27.64	2.67%
1995	$30.00	$24.00	$28.34	2.54%
1996	$34.00	$26.00	$29.28	3.32%
1997	$40.00	$30.00	$29.78	1.70%
1998	$50.00	$34.00	$30.26	1.61%
1999	$60.00	$35.00	$31.07	2.68%
Gmean Gro	6.25%	7.27%	4.73%	
Real Gro/Yr	1.52%	2.54%		
Trough-to-Trough(77-92)	5.01%	7.03%	5.66%	
Real Gro/Yr	-0.65%	1.37%		
Peak-to-Peak(87-99)	2.62%	1.88%	3.19%	
Real Gro/Yr	-0.58%	-1.32%		
Average Level	$31.64	$20.32		
Average Ratio B/A:	0.6422			
Functionl Depr Rate/Yr @ 50yr A to B:		-0.88%		

===> Implied Real Rent Gro/Yr Same Bldg: -1.49% <== This in spite normal upkeep & capital improvements.

e.g., If infla = 2.5%/yr then project approx +1%/yr nominal rent growth (same bldg, long run).



Avg Class A rent growth peak-peak (1987-99) = 2.6%; CPI inflation 1987-99 = 3.2%

➔ Real rent growth rate ***in market*** = 2.6% - 3.2% = -0.6%.

Avg Class B Rent / Avg Class A Rent = 0.64 ; Assume it take 50 yrs to fall from "A" to "B":

➔ Real Building Depreciation Rate = $-[(0.64)^{(1/50)} - 1] = 0.9\%$/yr.

➔ Real rent growth rate ***in same building*** = -0.6% – 0.9% = -1.5% / yr.

➔ Projected future inflation (beyond 2000) = 2.5%;

➔ Nominal rent growth same bldg = -1.5% + 2.5% = 1.0%.

Match the discount rate to the risk. . .

$$r = r_f + RP$$

Disc.Rate = Riskfree Rate + Risk Premium

(Riskfree Rate = US T-Bill Yield.)

Discount development phase at higher rate than operational phase, because development phase is more risky . . .

A method for determining the development phase OCC: $E[r_C]$ . . .
Using Equilibrium Across the Markets for Stabilized Property, Construction Debt, and Land…

The basic idea is that equilibrium requires: $$\frac{V_T - L_T}{(1+E[r_C])^T} = \frac{V_T}{(1+E[r_V])^T} - \frac{L_T}{(1+E[r_D])^T}$$

Otherwise, superior risk-adjusted returns (ex ante) could be made by investing in some combination of stabilized property (V_T), construction debt (L_T), or developable land (V_T-L_T). Presumably, equilibrium across markets drives market prices in these asset classes to be such that superior returns are not possible, and the above relationship tends to hold.

Thus, if you have knowledge of:

- ***V_T = Expected value of completed stabilized property at time T;***
- ***L_T = Expected balance due on construction loan at time T (all construction costs including financing costs);***
- ***$E[r_V]$ = Market expected total rate of return (OCC, going-in IRR) on investments in completed properties of the type to be built;***
- ***$E[r_D]$ = Market expected return (OCC) on construction loans (< loan interest rate).***

Then you can solve the above equation for $E[r_C]$ to obtain:

$$E[r_C] = \left[\frac{(V_T - L_T)(1+E[r_V])^T (1+E[r_D])^T}{(1+E[r_D])^T V_T - (1+E[r_V])^T L_T} \right]^{(1/T)} - 1$$

Method for determining $E[r_C]$, OCC of development phase…

Example: 1 Lincoln St development project (2000)…

- **Construction will take 4 years from time of decision (*T*=4).**
- **2000 projected value of stabilized property in 2003 (@ *8% OCC*), less projected wkg capital outflow in 2003: V_T=$376,000,000.**
- **Construction cost projected to 2003 value (@ 6% OCC): L_T=$244,000,000.**
- **OCC for spec building includes 2% risk premium over stabilized: ➔$E[r_V]$=10%.**
- **Construction cost OCC (@ r_f + *0.5%*): $E[r_D]$=6%.**

Thus, One Lincoln Ctr Devlpt Project OCC is:

$$OCC = E[r_C] = \left[\frac{(376-244)(1.1)^4 (1.06)^4}{(1.06)^4 376 - (1.1)^4 244} \right]^{1/4} - 1 = 20\%$$

The development investment should provide an expected return of 20%/yr over the 4-yr development phase (2000-2003).

Method for determining $E[r_C]$…

Note: This method assumes full irreversible commitment to the project…

Technically, this method is valid only when the development will *definitely* be built according to the schedule represented by the *T* variable in the equation.

In practice, this means the method is directly useful only for:

- **Single-phase projects that will be built rather soon (e.g., within a year or so), or;**
- **Projects for which the commitment is truly irreversible (i.e., no flexibility in subsequent staging or phases in the project).**

Otherwise, a *"Real Options"* approach is necessary to rigorously evaluate the project (and to derive the appropriate OCC). *(See subsequent lecture.)*

Back to the "Big Picture" (& NCCs) . . .

Although the capital market is risk-averse,

Nevertheless, the capital market ***loves risk***,

Because it can price it and trade it.

A risky investment is no problem for the capital market, and can easily obtain capital (at its price).

What the capital market can't handle is ***"The Unknown"*** :

"Uncertainty", in which the risk cannot be quantified, hence, cannot be priced, hence, ***no market***.

This is why very new, different (pioneering) investments have trouble getting capital from the mainstream capital market.

It used to be the only way to get capital for pioneering ventures was through private individual connections (often family), not really much of a "market" for this type of capital.

But the capital markets are always expanding, innovating, developing new "products" (vehicles for funneling financial capital, i.e., "money", from sources to uses), seeking out new "niches" of supply of capital and demand for capital.

It is a very entrepreneurial and competitive arena.

Recently (esp. last 10-20 years, primarily in the U.S.), the capital markets have developed major new products for placing capital into pioneering ventures, investments characterized by "uncertainty" (where the risk cannot be quantified).

Broadly, this is called the ***"Venture Capital Market"*** . . .

This market employs vehicles known as "venture capital funds".

These are "co-mingled" funds that ***pool*** relatively small amounts of money from many investors and place this capital into portfolios of many separate venture projects, thereby spreading the risk.

(It's the classic technique that goes back to how spice trading expeditions were financed in the Renaissance and the days of the *"East India Companies"*.)

Even more recently (past 5-10 years), the real estate investment industry (in the U.S.) has developed a real estate version of venture capital funds, known in the industry as:

"Real Estate Opportunity Funds"

This branch of the real estate investment industry has grown from nothing 10 years ago to over $100 billion today.

Opportunity funds are constantly seeking ventures with a prospect of earning very high returns, albeit with very high (and difficult to measure) risk.

They may be a major potential source of capital for investment in NCCs, but…

They generally seek a relatively quick turnaround (< 5 – 7 yrs).

Beyond the capacity of the private sector alone . . .

Ventures that are characterized by being:

- "Too pioneering" (appear very different, no track record);

And, either:

- Very large scale (difficult to "pool");

Or:

- Do not present a good prospect for a ***quick resolution*** of success or failure (horizon too long for Opportunity Funds).

Will not be able to obtain all of their required financing from the private capital markets.

➔ Requires public or non-profit sector subsidy.

What is unique about NCCs that can add the kind of value that can provide a high return for developers . . .

- **Design Value?...**
- **Business Value (amenities, agglomeration)?...**
- **Social Value (for public sector contribution)?...**

(We've tried to dig up some literature…)