

Chapter 11:

Real Estate Cash Flow Pro Formas

"PROFORMA"

= a multi-year cash flow forecast

(Typically 10 years.)

Show to: Lenders, Investors

But the proforma can be more useful than just “window dressing”, if done properly.

It is the basic vehicle to implement the DCF valuation and analysis procedure discussed in the previous chapter.

The CF proforma presents the **numerators** in the RHS of the DCF valuation equation.

2 types of CFs:

- Operating
- Reversion (Sale of Property, Sometimes *partial sales*)

2 ways of defining "bottom line". . .

1) Property level (PBTCF, *most common in practice*):

- Net CF produced by property, before subtracting debt svc pmts (DS) and inc. taxes.
- CFs to Govt, Debt investors (mortgagees), equity owners.
- CFs due purely to underlying productive physical asset, not based on financing or income tax effects.
- Relatively easy to observe empirically.
- Focus of Chapter 11.

2) Equity ownership after-tax level (EATCF):

- Net CF avail. to equity owner after DS & taxes.
- Determines value of equity only (not value to lenders).
- Sensitive to financing and income tax effects.
- Usually difficult to observe empirically (differs across investors).
- Will be addressed in Chapter 14.

Typical proforma line items...

At **Property, Before-tax** Level:

Operating (all years):

| | | |
|---|---|-------|
| Potential Gross Income = (Rent*SF) | = | PGI |
| - Vacancy Allowance = -(vac.rate)*(PGI) | = | - v |
| + Other Income = (eg, parking, laundry) | = | +OI |
| - Operating Expenses | = | - OE |
| <hr/> | | <hr/> |
| Net Operating Income | = | NOI |
| - Capital Improvement Expenditures | = | - CI |
| <hr/> | | <hr/> |
| Property Before-tax Cash Flow | = | PBTCF |

Reversion (last year & yrs of partial sales only):

| | | |
|------------------------------------|---|-------|
| Property Value at time of sale | = | V |
| - Selling Expenses = -(eg, broker) | = | - SE |
| <hr/> | | <hr/> |
| Property Before-tax Cash Flow | = | PBTCF |

Questions...

How forecast vacancy (v)?

- $Vac = (\text{vac months}) / (\text{vac months} + \text{rented months})$ in typical cycle.
- Look at typical vac rate in rental mkt; adjust for non-stabilized bldgs (e.g., gross vacancy in mkt typically > typical stabilized vac).
- History of vac. in subject bldg.
- Project for each space/lease: Probability of renewal & Expected vacant period if not renewed.

How forecast resale value (“reversion”, V at end)?

- Divide Yr.11 NOI by “going-out” (terminal) cap rate.

What should be the typical relationship between the going-in cap rate and the going-out cap rate? . . .

- Usually going-out \geq going-in (older bldgs have less growth & more risk), esp. if little capital imprvmt expdtrs have been projected.

Operating Expenses include:

Fixed:

- Property Taxes
- Property Insurance
- Security
- Management

Variable:

- Maintenance & Repairs
- Utilities (not paid by tenants)

Operating Expenses

NOTE:

OE do NOT include:

- *Income taxes,*
- *Depreciation expense.*

Must include mgt expense even if self-managed.

Why? . . .

Opportunity cost, “apples-to-apples” comparison with alternative investments that you don’t have to manage yourself.

Capital Expenditures include:

Leasing costs:

- Tenant build-outs or improvement expenditures (“TIs”)
- Leasing commissions to brokers

Property Improvements:

- Major repairs
- Replacement of major equipment
- Major remodeling of building, ground & fixtures
- Expansion of rentable area

Real world example...

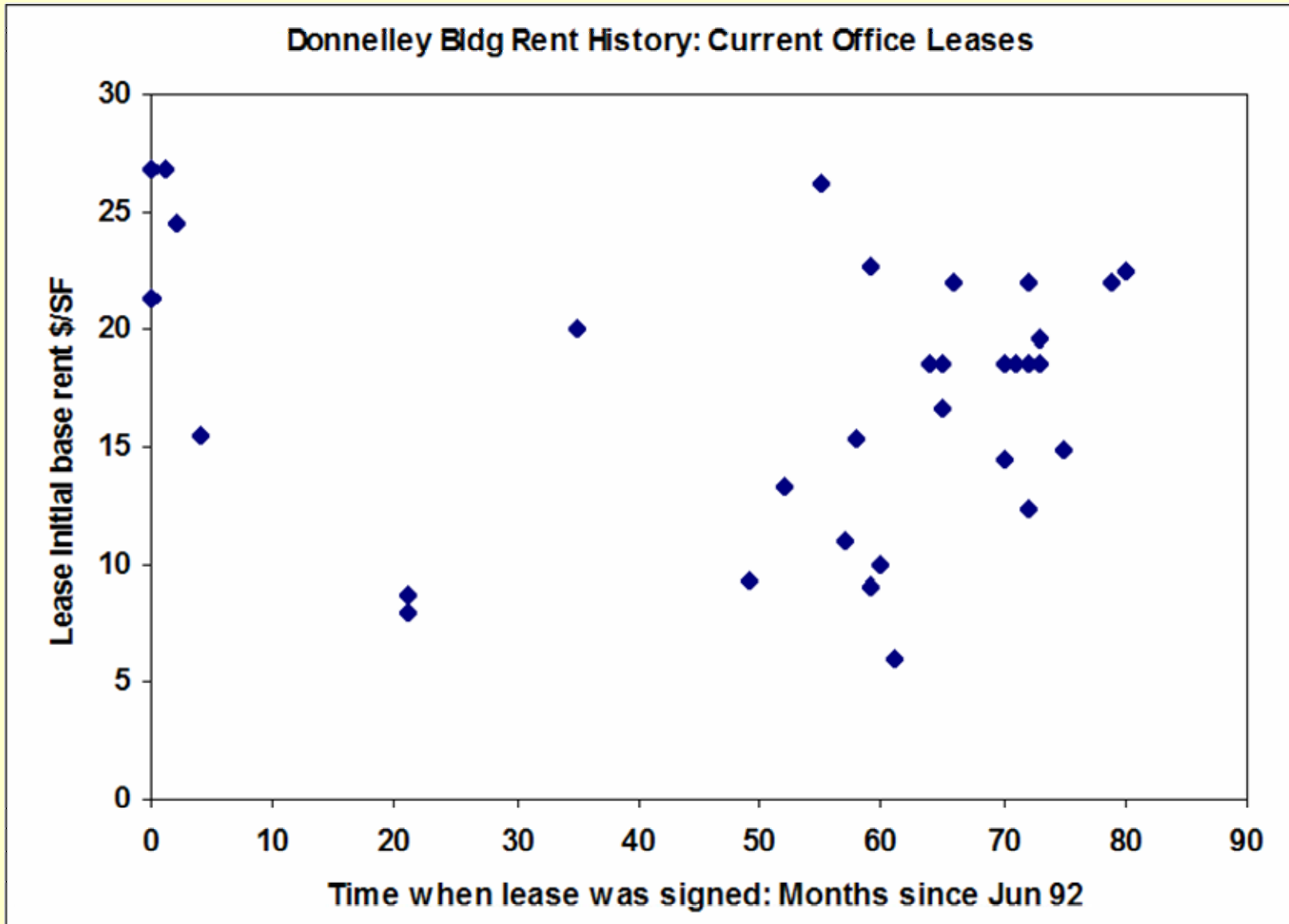
**The R.R. Donnelly
Bldg, Chicago**

**\$280 million,
945000 SF,
50-story
Office Tower**

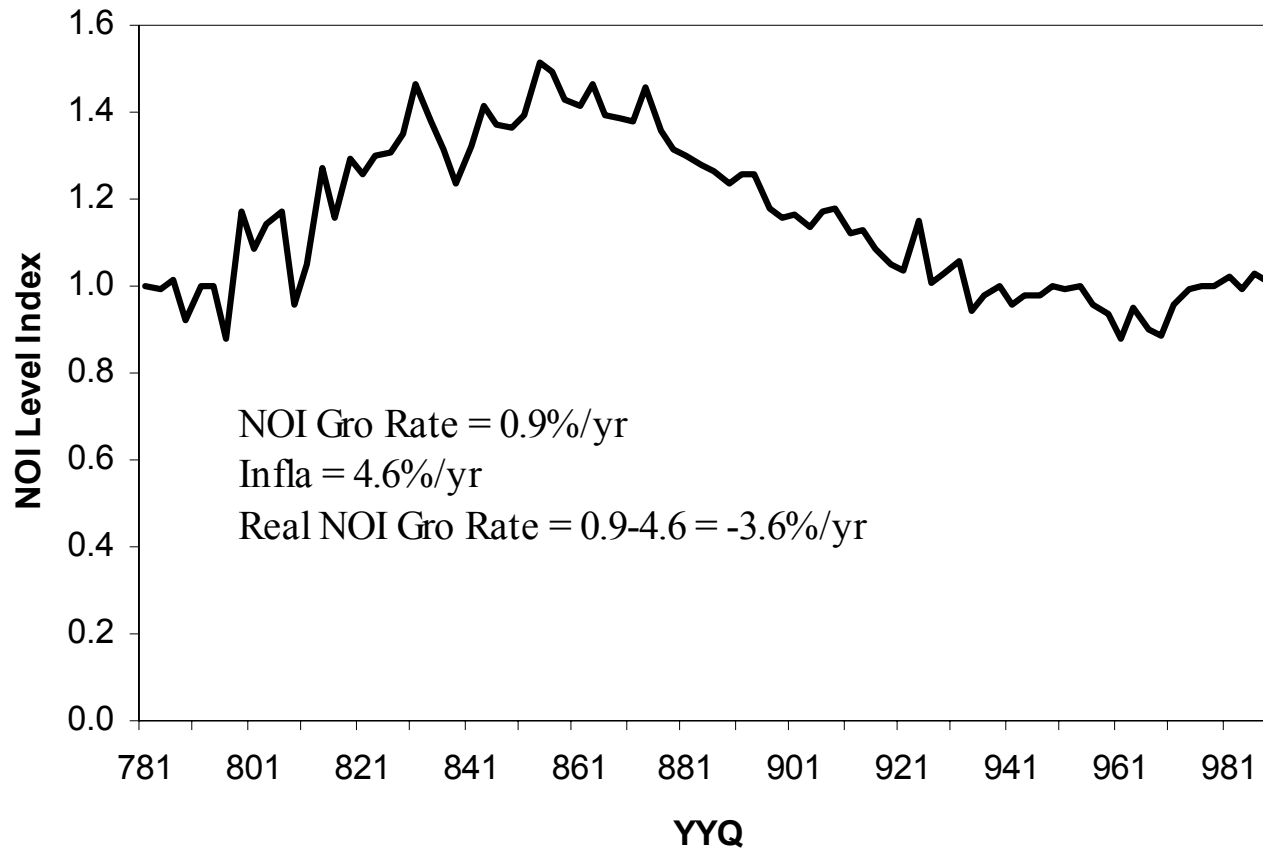
Donnelley Bldg Pro Forma...

| RR Donnelley Bldg Annual Cash Flow Projection | | | | | | | | | | | |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|
| Year: | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| POTENTIAL GROSS REVENUE | | | | | | | | | | | |
| Base Rental Revenue | 24033811 | 24991054 | 25635350 | 26383811 | 27922939 | 28654131 | 29373663 | 30057496 | 29525448 | 29850252 | 30742749 |
| Absorptn & Turnover Vac. | 0 | -122098 | -45383 | -284864 | -538960 | -64691 | -280794 | -98390 | -3542566 | -468748 | -133817 |
| Scheduled Base Rent Rev. | 24033811 | 24868956 | 25589967 | 26098947 | 27383979 | 28589440 | 29092869 | 29959106 | 25982882 | 29381504 | 30608932 |
| CPI & Other Adjustmt Rev. | 1295978 | 1489696 | 1688258 | 1891784 | 2100397 | 2314227 | 2533401 | 2758056 | 465942 | 0 | 0 |
| Expense Reimbursmt Rev. | 13830780 | 14359735 | 14886942 | 15215378 | 15588172 | 16665170 | 17028629 | 17626489 | 16203409 | 18857047 | 19661109 |
| Miscellaneous Income | 270931 | 279059 | 287430 | 296054 | 304935 | 314082 | 323505 | 333212 | 343207 | 353504 | 364108 |
| TOTAL PGR | 39431500 | 40997446 | 42452597 | 43502163 | 45377483 | 47882919 | 48978404 | 50676863 | 42995440 | 48592055 | 50634149 |
| Collection Loss | -561044 | -592080 | -625946 | -638690 | -681665 | -759463 | -770676 | -811778 | -827703 | -867105 | -921832 |
| EFFECTIVE GROSS REVENUE | 38870456 | 40405366 | 41826651 | 42863473 | 44695818 | 47123456 | 48207728 | 49865085 | 42167737 | 47724950 | 49712317 |
| OPERATING EXPENSES | | | | | | | | | | | |
| Repairs & Maintenance | 1723900 | 1775613 | 1829188 | 1883220 | 1938829 | 1998749 | 2057947 | 2120365 | 2171717 | 2248204 | 2316872 |
| Contract Cleaning | 1033459 | 1064415 | 1100189 | 1122605 | 1145141 | 1201526 | 1227982 | 1273344 | 1157614 | 1334681 | 1390062 |
| Security | 738946 | 761114 | 783949 | 807466 | 831690 | 856640 | 882340 | 908811 | 936075 | 964158 | 993081 |
| Utilities | 1076597 | 1108856 | 1145319 | 1170863 | 1196712 | 1250955 | 1280500 | 1326010 | 1237641 | 1393269 | 1447839 |
| General & Administrative | 741398 | 763639 | 786549 | 810146 | 834450 | 859483 | 885267 | 911825 | 939179 | 967355 | 996376 |
| Insurance | 144503 | 148838 | 153303 | 157902 | 162639 | 167518 | 172544 | 177720 | 183052 | 188543 | 194200 |
| Real Estate Taxes | 7943834 | 8182149 | 8427614 | 8680442 | 8940855 | 9209081 | 9485 | 9769914 | 10063012 | 10364902 | 10675849 |
| Management Fee | 971761 | 1010134 | 1045666 | 1071587 | 1117395 | 1178086 | 1205193 | 1246627 | 1054193 | 1193124 | 1242808 |
| Non-Reimbursable | 118890 | 122456 | 126131 | 129915 | 133812 | 137826 | 141961 | 146220 | 150607 | 155124 | 159778 |
| TOTAL OPERATING EXPENSES | 14493288 | 14937 | 15397908 | 15834146 | 16301523 | 16859864 | 17339088 | 17880836 | 17893090 | 18809360 | 19416865 |
| NET OPERATING INCOME | 24377168 | 25468152 | 26428743 | 27029327 | 28394295 | 30263592 | 30868640 | 31984249 | 24274647 | 28915590 | 30295452 |
| LEASING & CAPITAL COSTS | | | | | | | | | | | |
| Tenant Improvements | 272920 | 390507 | 138182 | 870713 | 1239057 | 621936 | 864411 | 233947 | 10949093 | 1439521 | |
| Leasing Commissions | 83615 | 121036 | 44684 | 456082 | 396166 | 289709 | 371606 | 74189 | 6473182 | 461531 | |
| Structural Reserves | 95281 | 98139 | 101084 | 104116 | 134759 | 220920 | 227548 | 234374 | 241405 | 248648 | |
| RR Donnelley TI | 0 | 0 | 0 | 100000 | 0 | 0 | 0 | 0 | 0 | 0 | |
| TOTAL CAPITAL COSTS | 451816 | 609682 | 283950 | 1530911 | 1769982 | 1132565 | 1463565 | 542510 | 17663680 | 2149700 | |
| OPERATING NET CASH FLOW | 23925352 | 24858470 | 26144793 | 25498416 | 26624313 | 29131027 | 29405075 | 31441739 | 6610967 | 26765890 | |
| Reversion @8.75%, 1%Cost | | | | | | | | | | 342771400 | |
| TOTAL NET CASH FLOW | 23925352 | 24858470 | 26144793 | 25498416 | 26624313 | 29131027 | 29405075 | 31441739 | 6610967 | 369537290 | |

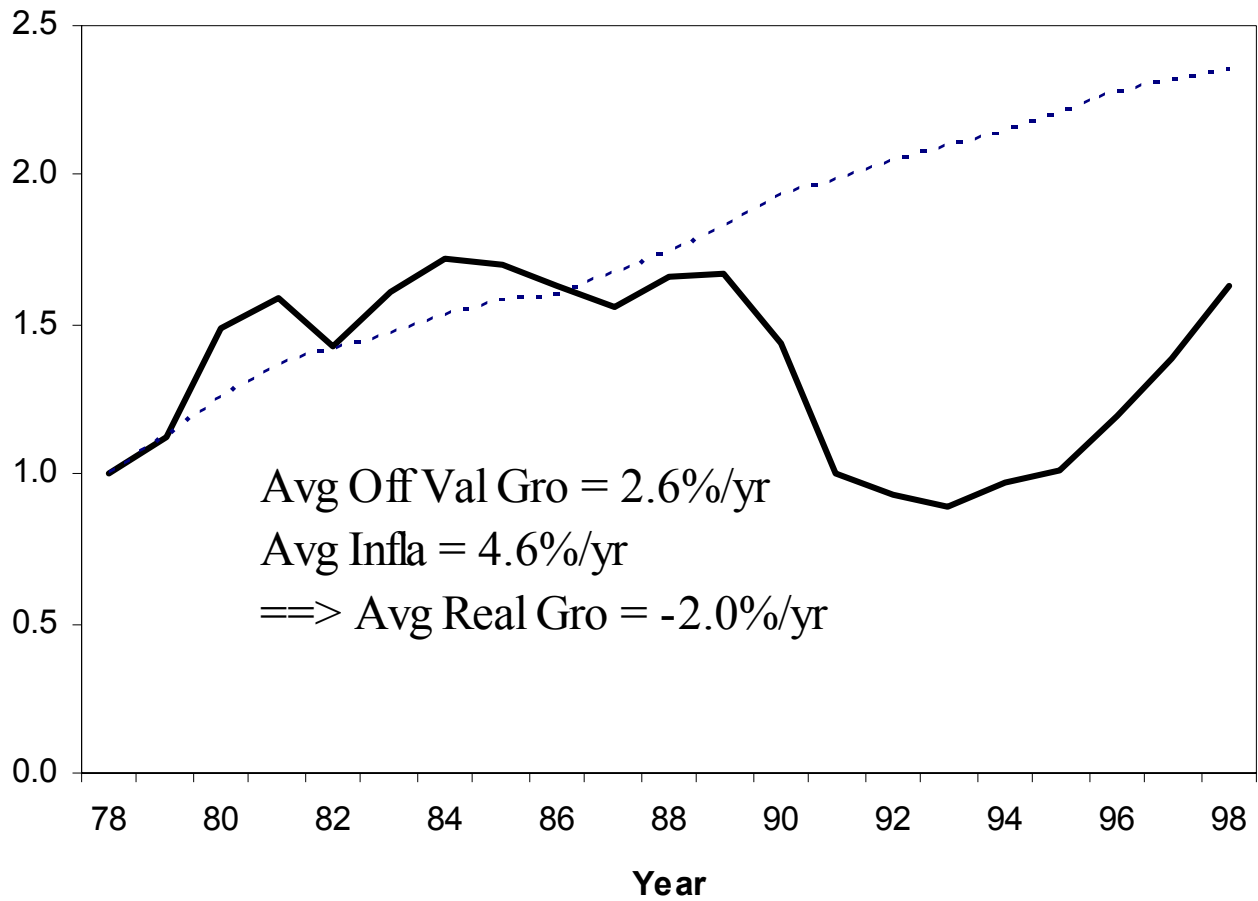
Donnelley Bldg Rent History: Current Office Leases



NCREIF Office Properties NOI Level



Index of Office Property Values (NCREIF)



Avg Off Val Gro = 2.6%/yr
Avg Infla = 4.6%/yr
==> Avg Real Gro = -2.0%/yr



Section 11.2:

*“Opportunity Cost of Capital” (OCC) at the
Property Level*

or:

**WHERE DO DISCOUNT RATES COME
FROM?...**

Broad Answer:
THE CAPITAL MARKETS

*That is, competing investment opportunities.
(This is so, whether we are talking about IV
or MV.)*

***IN DCF APPLICATIONS, KEEP IN MIND
WHAT THE DISCOUNT RATE IS...***

$$\begin{aligned}\text{Disc. Rate} &= \text{Required Return} \\ &= \text{Oppty. Cost of Capital} \\ &= \textit{Expected total return} \\ &= r \\ &= r_f + \text{RP} \\ &= y + g,\end{aligned}$$

among investors in the market today
*for assets similar in risk to the property in
question.*

NOTE:

Risk is in the object not in the beholder.

Property "X" has the same risk for Investor "A" as for Investor "B".

Therefore, opportunity cost of cap (r) is same for "A" & "B" for purposes of evaluating NPV of investment in "X" (same discount rate).

Unless, say, "A" has some *unique* ability to alter the risk of X's future CFs. (*This is rare: be skeptical of such claims!*)

Example...

REIT A has expected total return to equity = 12%, Avg.debt int.rate = 7%,
Debt/Total Asset Value Ratio = 20%

What is REIT A's (firm-level) Cost of Capital (WACC)?

Ans: $(0.2)7\% + (1-0.2)12\% = 1.4\% + 9.6\% = 11\%$.

*REIT B has no debt, curr.div.yield = 6%, pays out all its earnings in
dividends (share price/earnings multiple = 16.667), avg.div. growth
rate = 4%/yr.*

What is REIT B's (firm-level) Cost of Capital (WACC)?

[Hint: Use "Gordon Growth Model".]

Ans: $6\% + 4\% = 10\%$.

Example (cont.)...

Property X is a Boston Office Bldg, in a market where such bldgs sell at 8% cap rates (CF / V), with 0.5% expected LR annual growth (in V & CF). It has initial CF = \$1,000,000/yr.

How much can REIT A afford to pay for Prop.X (without suffering loss in share value)?

Answer:

$$\text{Prop.X OCC} = 8\% + 0.5\% = 8.5\%.$$

$$\text{Prop.X Val} = \$1,000,000 / (8.5\% - 0.5\%) = \$1,000,000 / 0.08 = \$12,500,000.$$

Note: This is not equal to: $\$1,000,000 / (11\% - 0.5\%) = \$9,524,000$

How much can REIT B afford to pay for Prop.X (without suffering loss in share value)?

Answer:

$$\text{Same as REIT A: Prop.X Val} = \$1,000,000 / (8.5\% - 0.5\%) = \$12,500,000.$$

Note: This is not equal to:

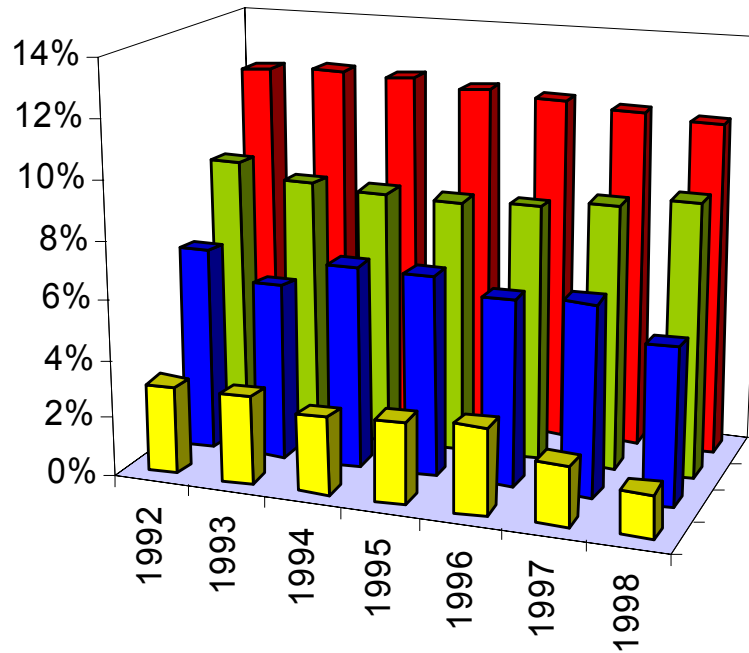
$$\$1,000,000 / (10\% - 4\%) = \$1,000,000 / 6\% = \$16,667,000.$$

HOW DO YOU DETERMINE THE DISCOUNT RATE?...

Usually a single ("blended") multi-year rate is OK for valuation and investment analysis ("going-in IRR").

One source of info is *direct surveys* of market participants. Another source is *historical evidence*...

Exhibit 11-4: Backward-looking vs Forward-looking Total Returns in the Property Market: NCREIF vs Korpacz.



| | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|-----------------|--------|--------|--------|--------|--------|--------|--------|
| ■ Inflation | 3.01% | 2.99% | 2.61% | 2.78% | 2.96% | 2.07% | 1.48% |
| ■ LT Bond | 6.95% | 5.98% | 6.92% | 6.86% | 6.33% | 6.48% | 5.34% |
| ■ NCREIF(Hist)* | 9.42% | 8.90% | 8.75% | 8.68% | 8.76% | 9.02% | 9.35% |
| ■ Korpacz IRR | 12.15% | 12.25% | 12.18% | 11.96% | 11.82% | 11.59% | 11.35% |

Survey avg \approx 200 bps $>$ Hist.avg.

Typical per annum OCC (“going-in IRR”) rates (late 1990s) . . .

For high quality (“class A”, “institutional quality”) income property:

- **10% - 12%**, stated.
- **8% - 10%**, realistic.

Lower quality or more risky income property (e.g., hotels, class B commercial, turnarounds, “mom & pops”):

- **12% - 15%**

Raw land (speculation):

- **15% - 30%**

Maybe a bit lower today.

How to **"back out"** implied discount rates from "cap rates" (OAR) observed from **transaction prices** in the **property market...**

$$\begin{aligned}\text{Cap rate} &= \text{NOI} / V \\ &\approx \text{CF} / V \\ &= y.\end{aligned}$$

Therefore, from market transaction data...

- 1) Observe prices (V)
- 2) Observe NOI of sold properties.
- 3) Therefore, observe "cap rates" = NOI / V .
- 4) Compute: $r = y + g \approx \text{cap rate} + g$.

So we can get an idea what the market's expected total return (discount rate) is for different types of properties by:

- 1. observing the cap rates at which they are sold,**
- 2. and then making reasonable assumptions about growth expectations (g).**

But, watch out for capital expenditures:

$$y = CF / V$$

$$\text{cap rate} = NOI / V$$

$$CF = NOI - CI,$$

(unless NOI is already net of a "reserve" for CI)

CI / V \approx 1% - 2% on avg in long run (usually).

Therefore:

$$r = y + g$$

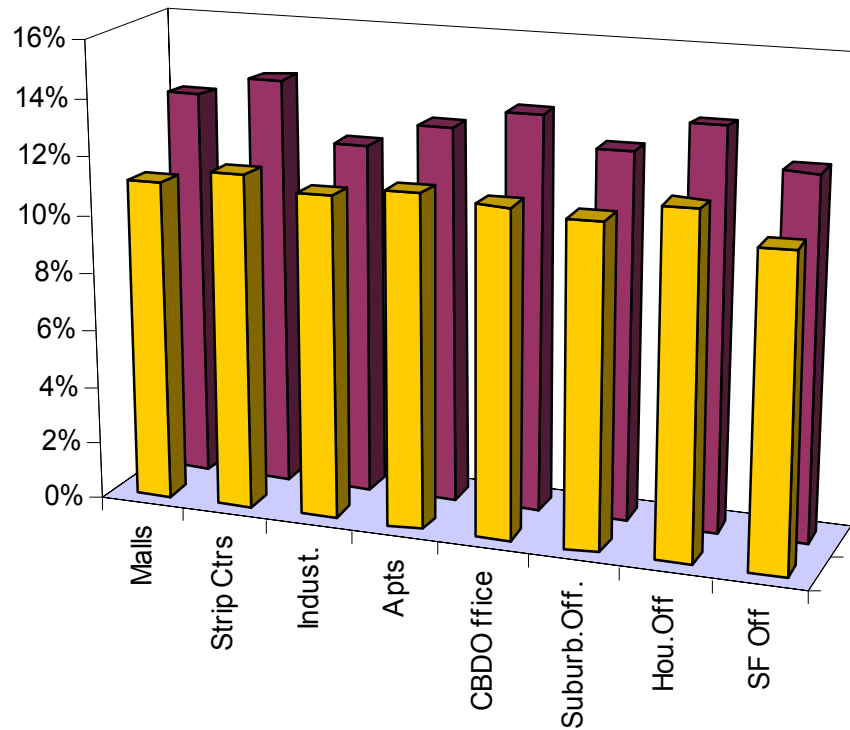
$$= (\text{cap rate}) + g - (CI/V),$$

unless cap rate already net of CI.

Watch out for terminology:

In Brealey-Myers “capitalization rate” is often used to refer to “r”, the total cost of capital (especially in corporate finance). “r” is also sometimes called the “total yield” (especially in the appraisal profession).

Exh.11-6a: Investor Total Return Expectations (IRR) for Various Property Types*



***Source: Korpacz Investor Survey, 1st quarter 1999**

| | Malls | Strip Ctrs | Indust. | Apts | CBD Office | Suburb. Off. | Hou. Off | SF Off |
|---|--------|------------|---------|--------|------------|--------------|----------|--------|
| ■ Institutional | 11.14% | 11.61% | 11.14% | 11.48% | 11.28% | 11.11% | 11.78% | 10.71% |
| ■ Non-institutional | 13.50% | 14.20% | 12.18% | 13.01% | 13.69% | 12.73% | 13.75% | 12.46% |