

# ***Chapter 23:***

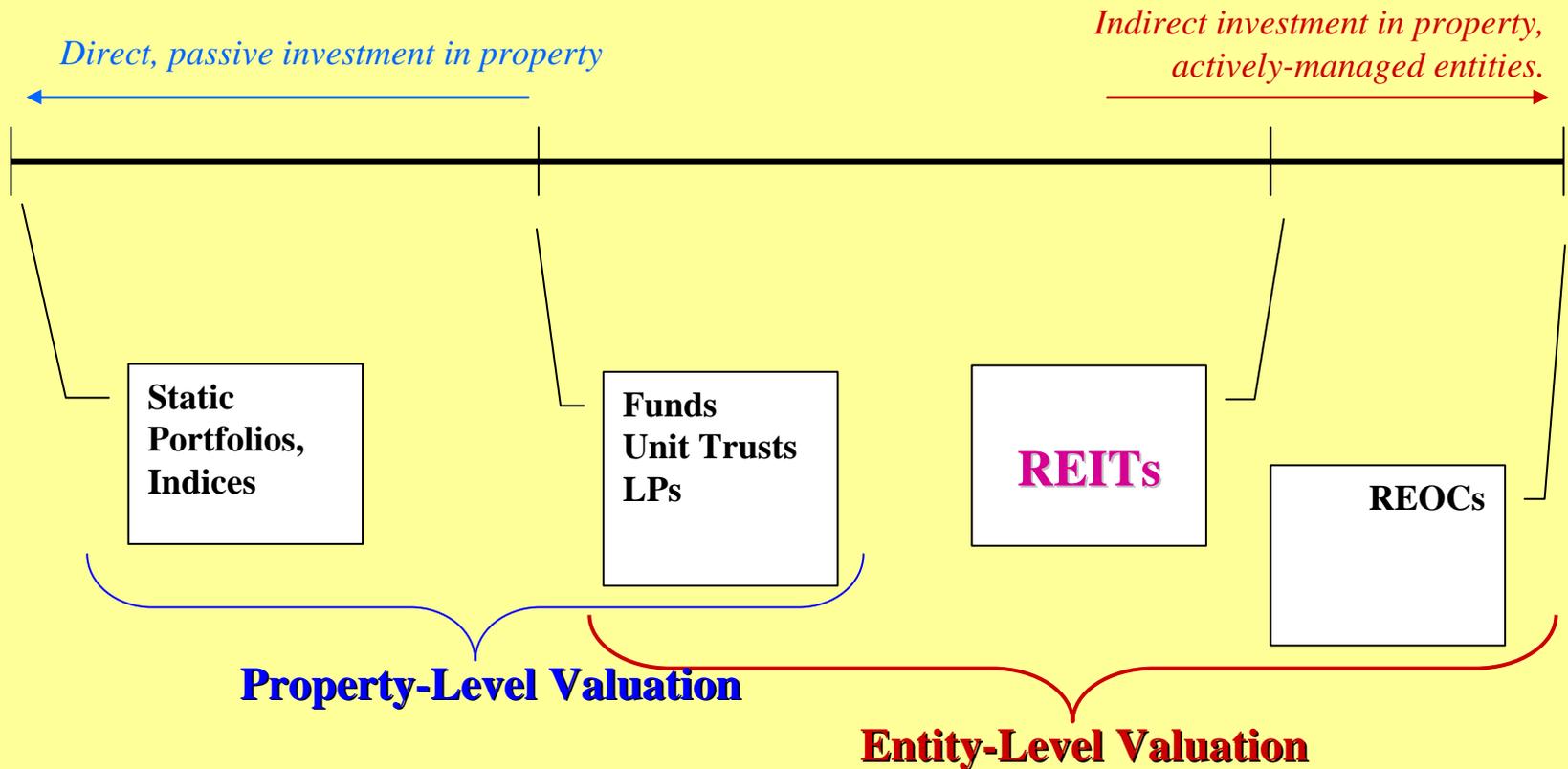
## **Real Estate Investment Trusts (REITs)**

Also including a review of Ch 12 Section 12.3:

“Dueling Asset Markets”

**“Macro-level valuation”** → Valuation of aggregates of numerous individual properties, e.g., portfolios, indices, funds, REITs...

**The *spectrum* of macro-level R.E. equity investment entities:**



**Valuation issue:**

- Static portfolios (private assets) → *Value estimation (measurement)*.
- REITs (publicly-traded assets) → *Value determination (causal)*.

# What are Real Estate Investment Trusts?

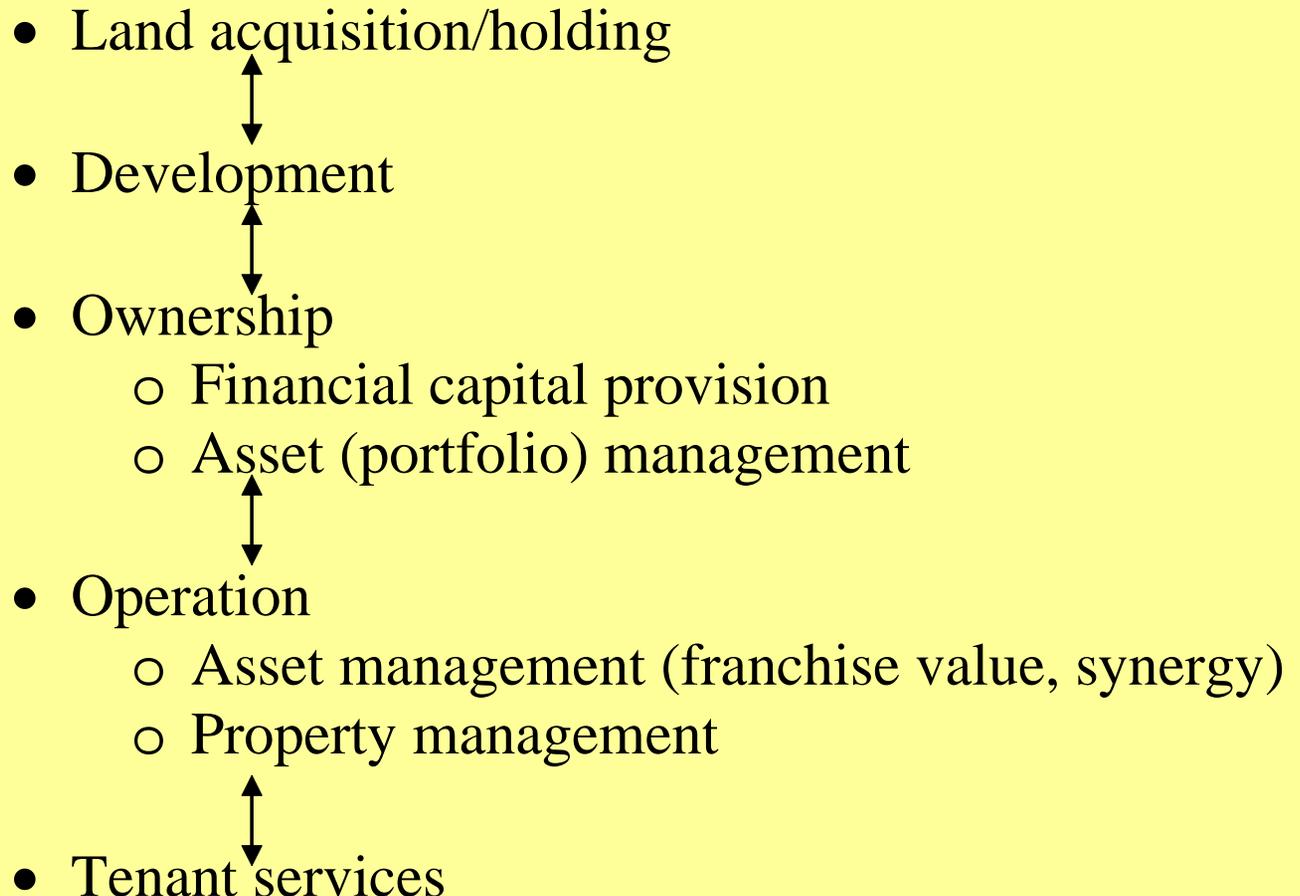
- Operating companies that own, develop and manage commercial real estate
- Chartered as a corporation or business trust
- Elective choice under tax code creates pass-through of income
- Revenue must primarily come from real estate investments
- Required to distribute at least 90 percent of their taxable income
- Taxation of income is passed through to shareholder level

# What Makes a REIT Different?

- 75 percent of assets must be invested in:
  - Equity ownership of real property
  - Mortgages
  - Other REIT shares
  - Government securities and cash
- 75 percent of revenue must come from:
  - Rents from real property
  - Mortgage interest
  - Gains from sales of real property

Large REITs are actively-managed, vertically integrated firms providing commercial real estate goods and services for their “customers” (tenants & users of space).

*“Vertical integration”:*



# Public REITs as a Core Asset Class

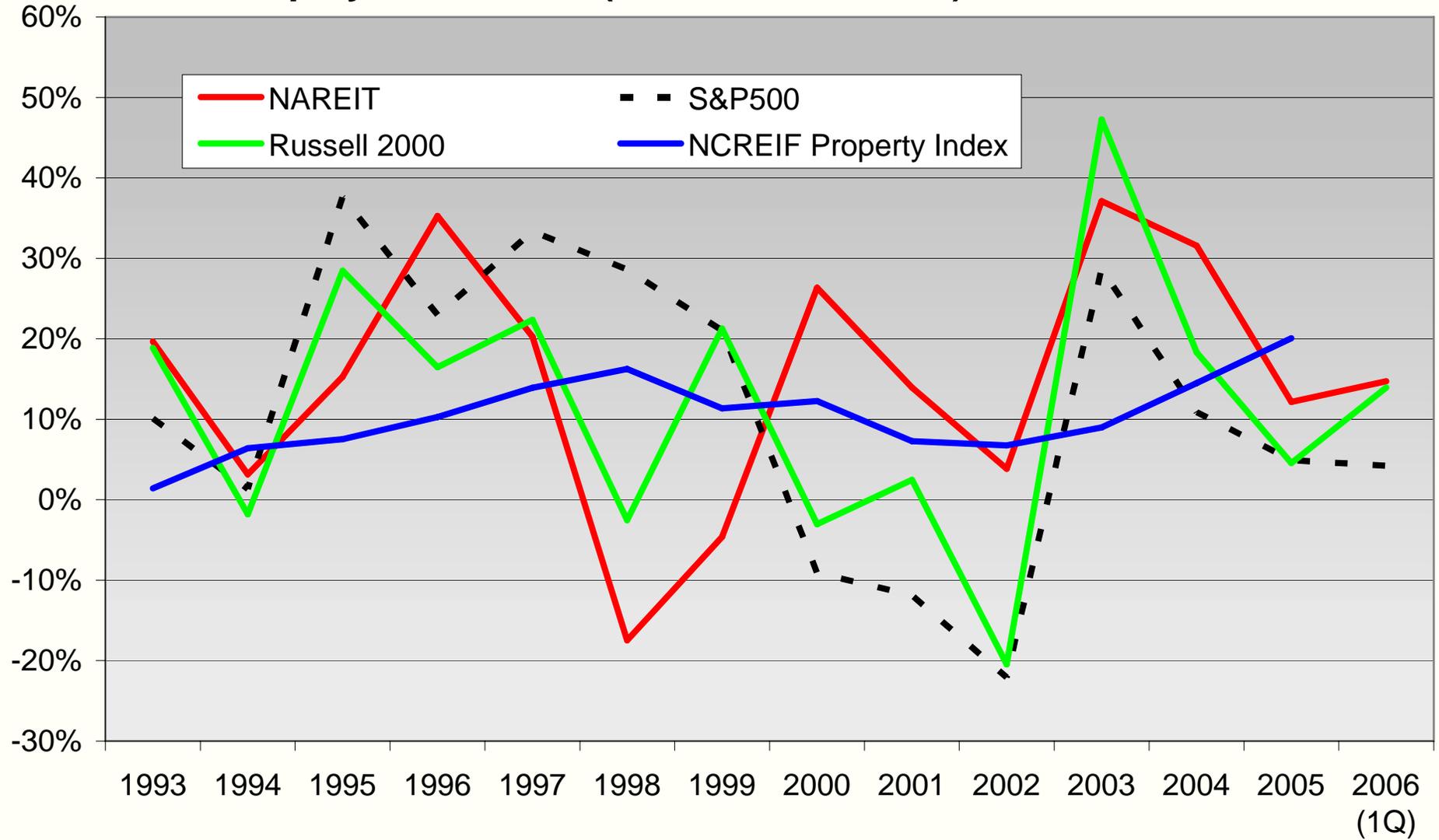
- REITs = Real Estate Stocks
- REITs have distinct investment performance characteristics
- REIT returns are influenced by:
  - Real estate fundamentals
  - Equity market valuations
- Real estate market supply and demand determine occupancy and rental growth
- Equity market assesses risk and prices cash flow

# REITs in a mixed asset portfolio...

**“REITs smell like real estate, look like bonds and walk like equity”**

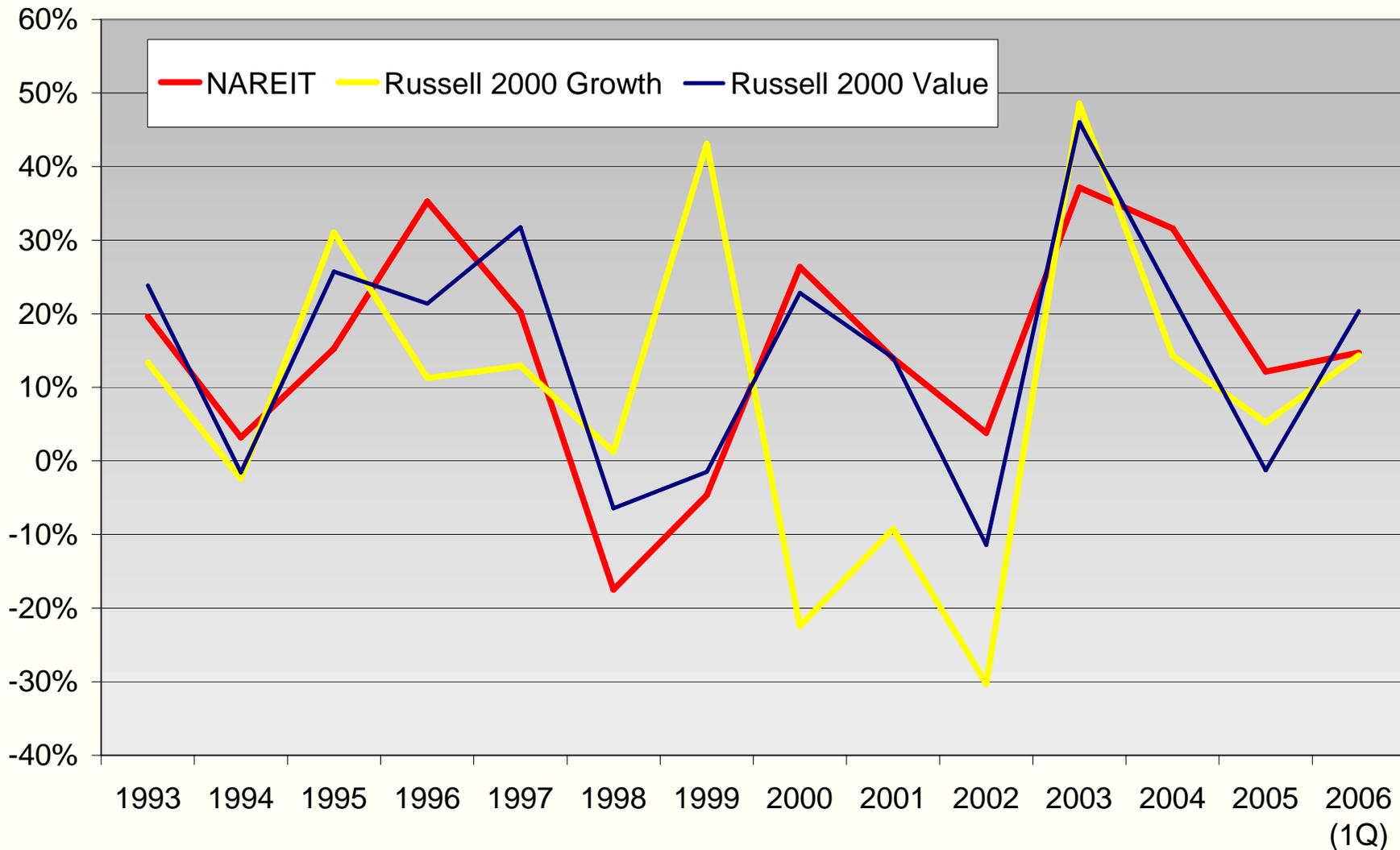
Greg Whyte, Analyst, Morgan Stanley

# Comparative Total Return Investment Performance: Equity Real Estate (Public and Private) versus Stocks



Source: National Association of Real Estate Investment Trusts (NAREIT).

## Comparative Total Return Investment Performance: REITs versus Small Cap Growth and Value Stocks



Source: NAREIT

### Equity REIT Dividend Yield v. 10-Year Constant Maturity Treasury Yield

January 1990 - June 2006

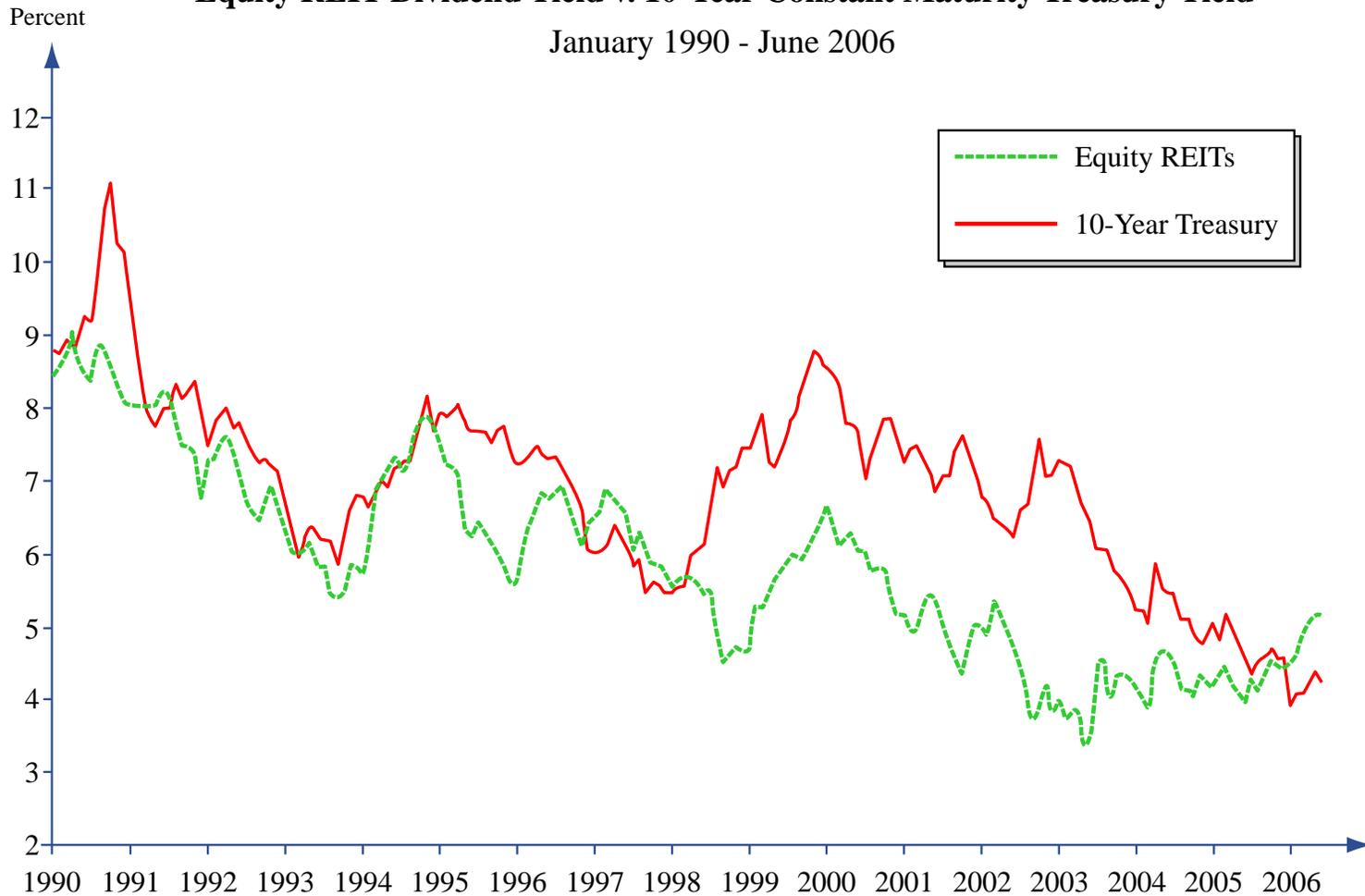


Figure by MIT OCW.

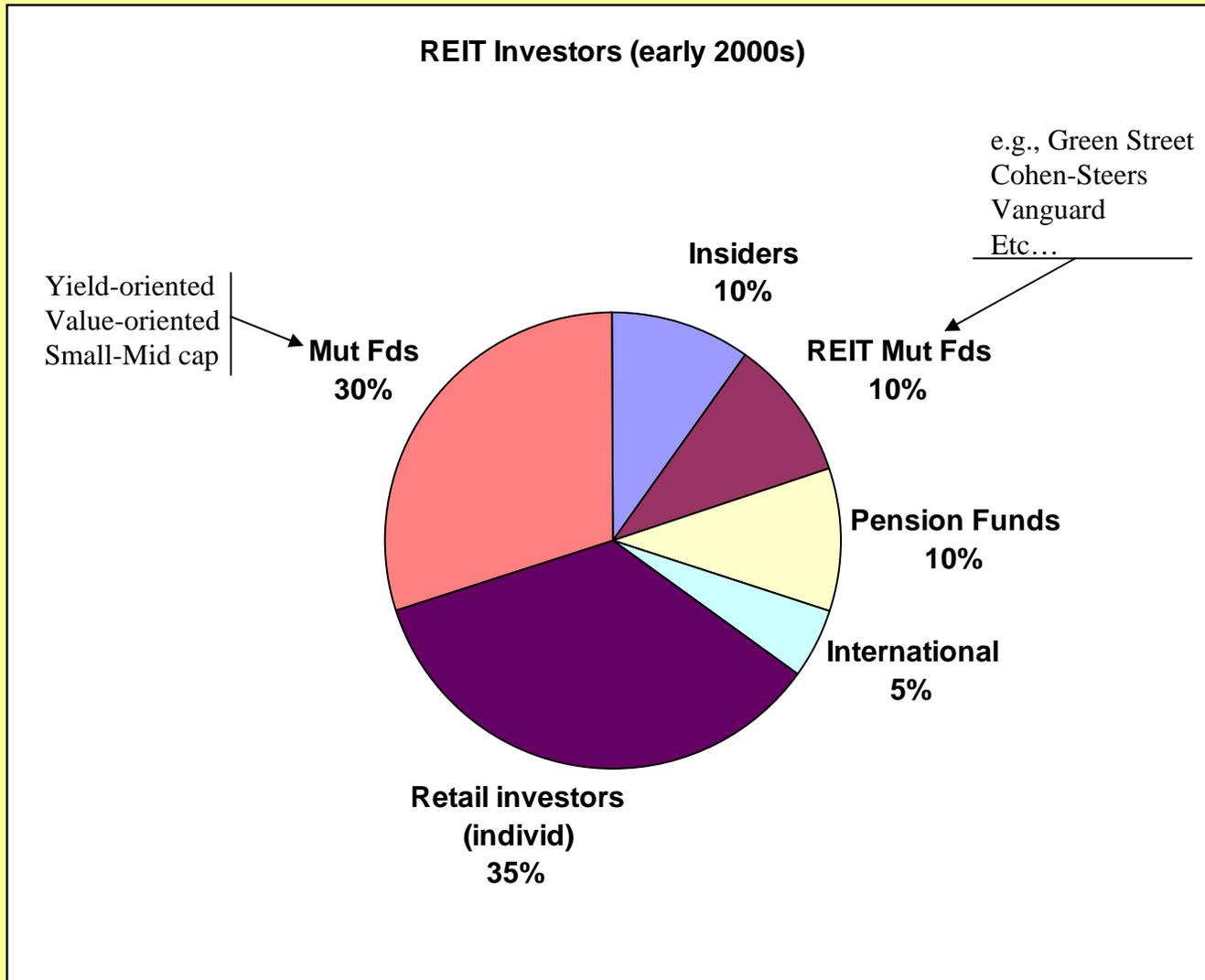
## ***Public* REITs are ...**

**Like typical industrial/service/information companies traded on the stock exchanges, *except*:**

- **Exempt from corporate income tax**
- **Restricted to real estate investment related activities**
- **Restrictions on “merchant building”**
- **Must pay out 90% of earnings in dividends**

**So REITs are “different animals” – somewhat passive (compared to other stocks), “pure plays” (in real estate).**

# REIT Investors...



**Recall:** Different types of investors have different *objectives, constraints, concerns, horizons, income-vs-growth preferences, risk preferences, etc...*

# 23.1 REIT Structure and Market Evolution

## 23.1.1 Tax Status, Regulatory Constraints and FFO

REITs are *exempt from corporate income tax*:

Original intent of 1960 REIT Act was to create a “mutual fund” type vehicle to allow small investors to invest in commercial real estate. (Mutual funds pay no taxes, but pass through tax obligations to investors on dividends and CG realized in the fund each year.) To implement the spirit of this law, REITs must be:

- **Passive “pass-through” type vehicles similar to mutual funds;**
- **Confined to “pure plays” in real estate investment;**
- **Required to maintain broadly-dispersed ownership (many investors).**

Some of these requirements have been relaxed over the years, but several constraints are currently applied to REITs (and are likely to remain)...

## ***Major REIT constraints required to maintain tax-exempt status:***

**1) “Five or Fewer Rule”.** A REIT cannot be a closely held corporation. No five or fewer individuals (and certain trusts) may own more than 50% of the REIT's stock, and there must be at least 100 different shareholders. [**Ownership Test**]

**2) “Real Estate Pure Play”.** 75% or more of the REITs total assets must be real estate, mortgages, cash, or federal government securities, and 75% or more of the REIT’s yearly gross income must be derived directly or indirectly from real property (including mortgages, partnerships and other REITs). [**Asset Test**]

**3) “Passive Investment Entity Requirement”.** REITs must derive their income from primarily passive sources like rents and mortgage interest, as distinct from short-term trading or sale of property assets. They cannot use their tax status to shield non-real-estate income from corporate taxation. A REIT is subject to a tax of **100%** on net income from "prohibited transactions", such as the sale or other disposition of property held primarily for sale in the ordinary course of its trade or business. However, if the REIT sells property it has **held for at least 4 years** and the aggregate adjusted basis of the property sold does not exceed **10%** of the aggregate basis of all assets of the REIT as of the beginning of the year, then no prohibited transaction is deemed to have occurred. [**Income Test**]

**4) “Earnings Payout Requirement”.** 90% or more of the REIT’s annual taxable income must be distributed to shareholders as dividends each year. (Shareholders will then pay ordinary income tax on the earnings in their personal taxes.) [**Distribution Test**]

## How binding is the 90% payout constraint? . . .

The 90% earnings payout requirement could force REITs to rely more heavily on *external sources of capital* (e.g., stock mkt, bond mkt, mortgages) than other corporations.

But in fact, this constraint has not usually been binding:

- Typical REIT pays out more than the minimum requirement.

This is because:

- Real estate is a capital intensive business investing in “*cash cows*”, not a growth industry demanding constant cash feeding.
- IRS depreciation rules allow property assets to be depreciated even though nominal values and cash flow generation typically do not decline, hence, *depreciation expenses shelter* much cash flow (reducing *taxable* income, hence reducing the payout requirement).

➔ During the 1990s the then-requirement of 95% earnings payout typically equated to only about 60% of REIT operational cash flow, and the average REIT dividend payout was about 65% of such CF.

# How binding is the 90% payout constraint?

*A first look at FFO at a basic level ...*

EBIDTA	\$100
- Interest	20
- Depreciation	30
= GAAP Net Income	\$50
-----	
<i>Dividends Paid</i>	\$54.25

*How can the REIT pay more in dividends than it receives in income?*

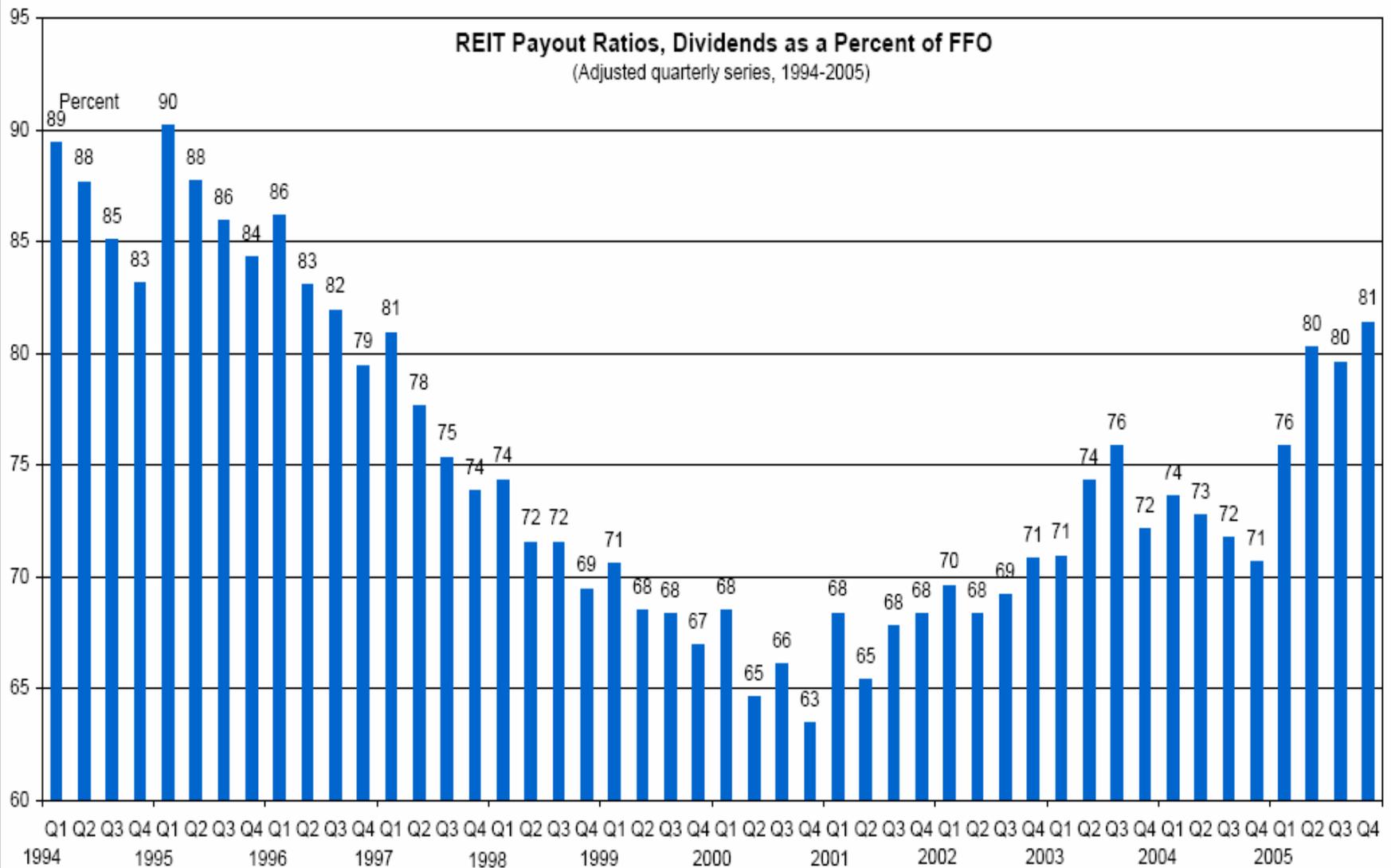
$\$54.25 > 90\% * \$50 = \$45.$   
Hence REIT “passes”  
Distribution Test.

- GAAP NI represents *accounting earnings* not cash flow
- Funds from Operation (FFO) = GAAP NI + Depreciation

$$\text{FFO} = \$80 \ \& \ \text{Div/FFO} = 54.25/80 = 68\% \ll 90\%$$

## REIT Payout Ratios, Dividends as a Percent of FFO

(Adjusted quarterly series, 1994-2005)



<sup>1</sup> 1994 - 1999 quarters are based on partial data for the Top 100 Equity REITs

**There have been some significant relaxations of REIT constraints, most notably:**

- **1986: REITs permitted to “self manage”, no longer have to hire an external manager.**
  - **This permits REITs to be much more “*active*”, integrated corporations, similar to typical industrial firms (only still subject to the previously-noted constraints).**
- **1993: REITs permitted to “*look through*” a pension fund to count it as a number of investors equal to its members (avoids *Five or Fewer Rule* for pension fund investment in REITs).**
- **1999: REITs permitted to engage in non-REIT type activity via *Taxable REIT Subsidiaries* (TRS), in which the subsidiary is subject to corporate income tax (e.g., 3<sup>rd</sup>-party property management, brokerage, property trading).**

- **Nevertheless, the REIT restrictions (not just the 90% payout rule, but other constraints previously noted as well), do have some limiting effect on REIT operations, ... at least for some REITs at some times.**
- **These restrictions may provide some reason, in specific instances, why a REIT's stock market valuation might be less than the NAV of the property assets it owns.**
- **And to avoid these constraints is the reason why many real estate firms (some publicly-traded) have elected to be “C-corporations” subject to corporate income tax.**
- **Such firms are called “*REOCs*” (Real Estate Operating Companies).**
- **Obviously, the “merchant building” firms, such as the major publicly-traded tract housing developers, are all REOCs.**

## 23.1.2 The 1990s REIT Boom and Modern REIT Era

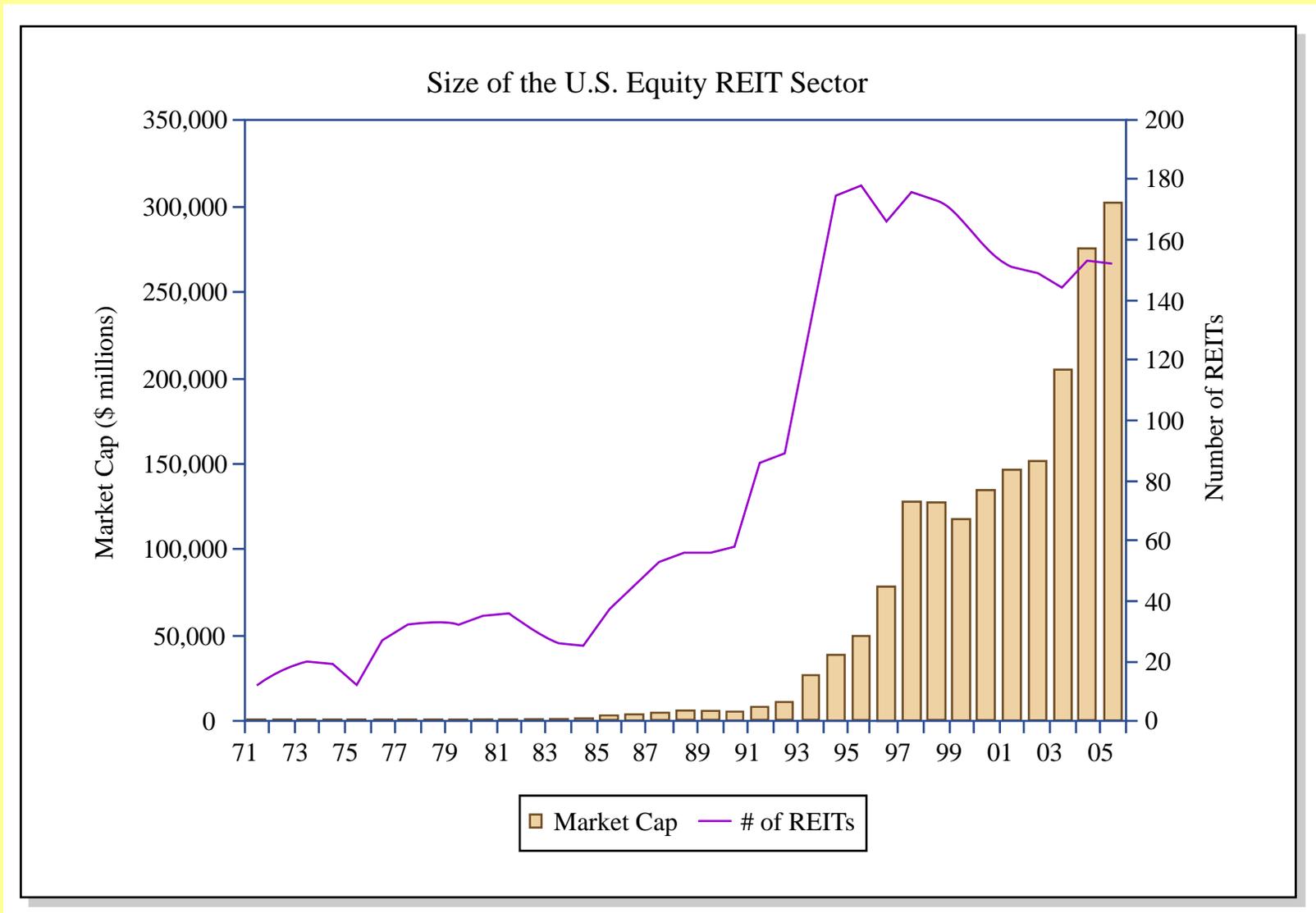


Figure by MIT OCW, adapted from course textbook.

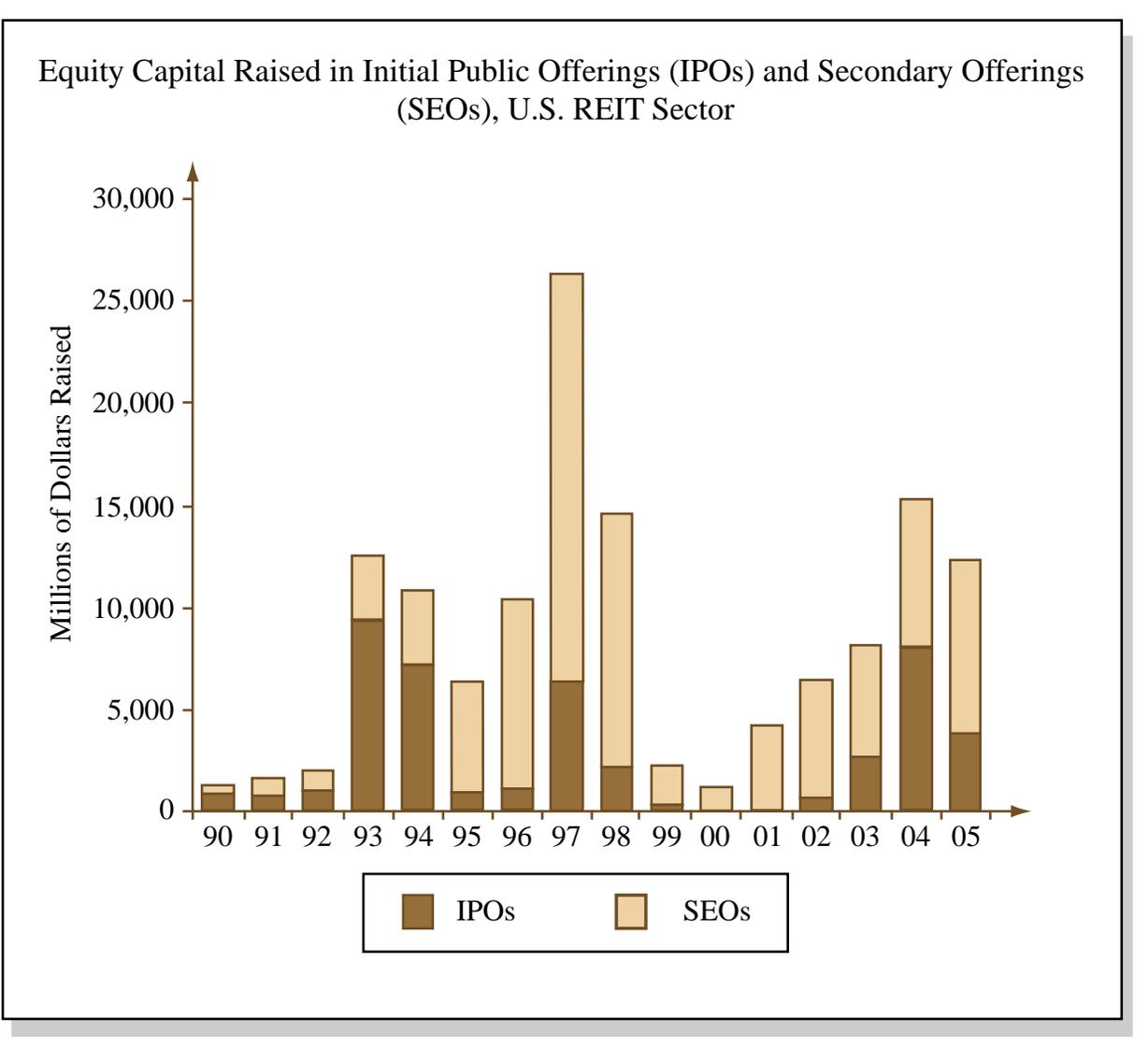


Figure by MIT OCW, adapted from course textbook.

# Securities Offerings by REITs

(Quarterly 1992:Q1-2006:Q2)

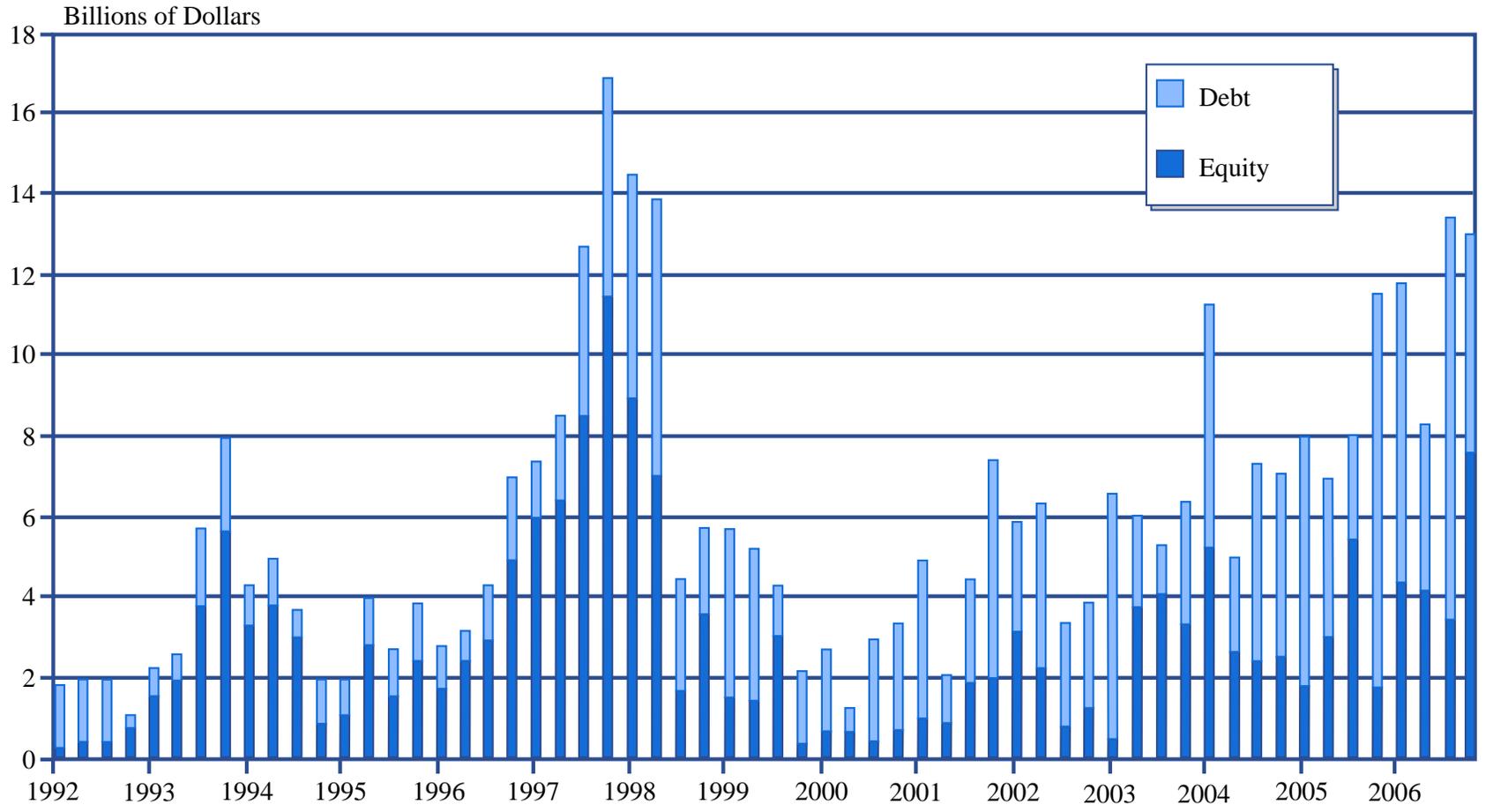


Figure by MIT OCW.

# Property Acquisition by REITs

(Quarterly 1992:Q1-2006:Q4)

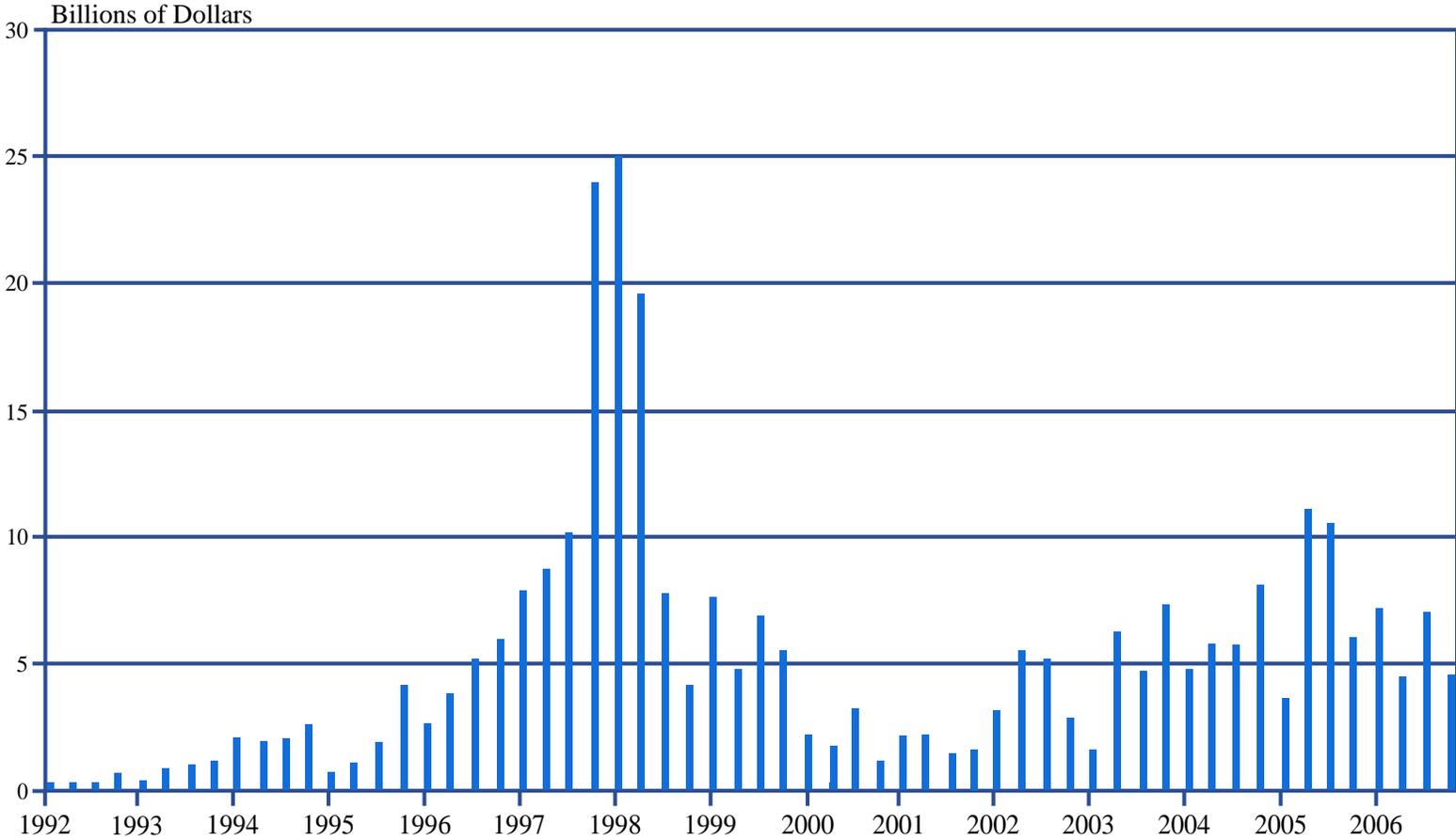


Figure by MIT OCW.

# Average Daily Dollar Trading Volume of the FTSE NAREIT All REIT Index (March 1990 - June 2006)



Source: NAREIT®

# REIT Membership in the S&P 500 Index

AIMCO	AIV	3/13/2003
Archstone-Smith	ASN	12/17/2004
Boston Properties	BXP	3/31/2006
Equity Office	EOP	10/1/2001
Equity Residential	EQR	11/1/2001
Kimco Realty	KIM	4/3/2006
Plum Creek Timber	PCL	1/16/2002
ProLogis	PLD	7/16/2003
Public Storage, Inc.	PSA	8/18/2005
Simon Property	SPG	6/25/2002
Vornado Realty Trust	VNO	8/11/2005

*In the fall of 2001  
... REITs finally  
gain some respect!*

## 23.2 REIT Analysis & Valuation in the Stock Market

REIT shares are valued in the same way as other public equities, but with a twist because of the unique Real Estate asset base ...

- **Dividend Discount or DCF Models**

⇒ Share price equals PV of expected future dividends

- **Earnings Multiple Shortcuts to DCF**

⇒ Share price equals a multiple of REIT **earnings/cash flow**

REITs viewed as operating companies like other publicly-traded firms (23.2.2)

- **Premium to Net Asset Value (NAV) of a REIT's Properties** (23.2.5)

Build an estimate of **public** REIT equity value starting with the **private** mkt value of a REIT's assets in place, then adjust for growth opps and other factors.

⇒ Share price equals a “warranted” premium (or discount) to REIT NAV

The three approaches are certainly related, but may at times provide different indications of value, depending on the general economic environment as well as conditions in the public stock and bond markets, and the private real estate market.

## 23.2.1 More on REIT Earnings Measures

### *The Problem:*

How to compare REIT earnings with those of other corporations (e.g., so as to compare share *price/earnings* multiples on an “apples vs apples” basis.

- Real estate investment & ownership (the “REIT business”) is *very capital intensive*:

- REITs have abnormally high *depreciation expenses*, which reduce “official earnings” (*GAAP net income*), the standard measure of corporate earnings on Wall Street.

- Yet REIT assets do not actually depreciate in the sense that “same-store” property cash flows and values typically do not decline in nominal terms (because the *real depreciation* rate in property is typically matched or even exceeded by the general monetary *inflation* rate).

- Hence (so the argument goes):

*GAAP earnings don't present a “fair” or “accurate” measure of REIT earnings.*

In the early 1990s, the REIT industry (through NAREIT) came up with an *alternative measure of earnings* that the industry tried to promulgate as a substitute for GAAP net income for the REIT industry:

***“Funds From Operations”***

**FFO**

**FFO (“Funds From Operations”)**

Start with **GAAP net income**, then

*Add back:* **Real property depreciation expense.**

*Add back:* **Preferred stock dividends and distributions to OP unit- holders.**

*Deduct:* **Net gains from property sales & extraordinary items.**

**FFO  $\approx$  Aggregate (i.e. firm level) NOI - interest**

This was further supplemented by another measure that more closely reflected cash flow actually available for external distribution:

***“Adjusted Funds From Operations”***  
***AFFO***

**AFFO (“Adjusted Funds from Operation”)** – sim to & smtms aka  
“Funds Available for Distritution” (FAD\*)

Start with **FFO**, then:

*Deduct:* **Recurring capital improvement expenditures (CI).**

*Adjust for:* **Straight-line rents.**

*Deduct:* **Amortization of debt principle (AMORT).**

**AFFO  $\approx$  Aggregate (i.e. firm level) EBTCF**

*Less entity level  
overhead*

***Terminology Alert!***

**In common parlance it is often not clear exactly what measure is being referred to when people use the terms “FFO” and “AFFO”.**

**FFO is often spoken of as the analogy at the REIT level of the “NOI” at the property level. *But what is an important difference between these two measures of earnings?...***

**FFO is a *firm-level* measure that is net of interest payments on the REIT’s debt.  
NOI is a *property-level* measure that is free and clear of debt.**

**AFFO is the firm-level analog to the EBTCF (Equity Before-Tax Cash Flow) measure at the property level (only from operations, not asset sales).**

**Typical *P/E* ratios based on AFFO have varied between 8 and 12 in recent years for most REITs (vs around 15 for stocks), while dividend yields have traditionally averaged 6% to 8%.**

**In recent years *P/Es* have risen to over 20, and yields have fallen (as in other asset classes), lately below 4%.**

**A simple (and somewhat *simplistic*) method of REIT valuation of a property acquisition would be to compare the property price / EBTCF multiple (based on the REIT’s target capital structure debt applied to the property) with the REIT’s current *P/E*. If the latter exceeds the former, the acquisition may seem feasible (and/or “accretive” – to grow share price – if the REIT multiple exceeds the property multiple).**

**However, you are more sophisticated than this simplistic approach, aren’t you!**

## Problems with FFO, AFFO, etc.,...

**The principle underlying “*The FFO Movement*” is valid:**

***Cash flow matters more than accounting numbers.***

**However, in practice several problems arose with the use of FFO:**

- **The REIT industry could never agree on a single, mandatory standard definition of how to define and measure FFO (or AFFO, or any of the other cash-oriented earnings measures).**
- **→ There arose a profusion of different measures and definitions, with each REIT tending to *customize* its own measure (e.g., REITs that made substantial money from property sales didn’t like FFO’s removal of extraordinary earnings due to asset sales; they said their “operations” included “asset sales”).**
- **There was a substantial loss in *credibility* (based perhaps more on perception than reality), which was exacerbated with the general corporate “*Pro-Forma Earnings Scandal*” of the early 2000s, associated with the stock market crash.**

**For all its faults, GAAP net income has the one great advantage that it is uniformly and precisely defined, the same for everyone.**

## 23.2.2 Dividend Pricing Models and the Gordon Shortcut

The Stock market is *highly integrated*.

REIT equity shares are traded in the stock market.

So REITs are valued essentially like other stocks (*DCF, Ch.10*):

$$E = \frac{DIV_1}{1+r} + \frac{DIV_2}{(1+r)^2} + \frac{DIV_3}{(1+r)^3} + \dots$$

*DIV* = Annual entity (firm) level equity cash flow to stockholders (“Dividends”).

*r* = Stock Mkt’s required *ex ante* total return to firm-level equity (REIT’s avg equity cost of capital).

*E* = Value of REIT’s equity (stock price).

More common short-cut is:

$$E = \frac{DIV_1}{r - g^*}$$

← “Gordon Growth Model” (GGM)

(Based on forward-looking long-run average *r* and *g*.)

*g*\* = Long-run avg future growth rate in dividends.

GGM  $\rightarrow$  REIT Value =  $f(DIV_1, g^*, r)$ . Based on three values.

$$E = \frac{DIV_1}{r - g^*}$$

**$DIV_1$**   $\leftarrow$  PBTFCF – DS – *plowback* (holdings & sales, less *plowback*):

- Analyze firm's current property operations & financing.
- Firm can temporarily pay out more cash than it earns from operations by the use of sales of its assets or by the use of financing techniques, but GGM requires long-run average values (avoid or stabilize “*extraordinary*” sources of dividends).

**$g^*$**  is very important ( 1 pt  $\Delta g^* \rightarrow > \approx 20\% \Delta E$  ). Reflects:

- LR growth in EBTCF (sustainable “**same store growth**”(as levered) + “**plowback**”).
- LR ability of REIT mgt to generate “**growth opportunities**” (NPV>0 projects). This is the toughest part (and why we add the \* to the g).

**$r$**  = Firm's avg equity OCC =  $r_f + RP = y + g^*$ , in the firm's equity:

$\leftarrow$  Based on Stock Mkt's perception & evaluation of firm-level risk.

Two major traditional approaches to estimate  $E[RP]$ : **CAPM** & **GGM**.

$$r = r_f + \beta(E[r_M] - r_f)$$

$$r = \frac{DIV_1}{E} + g^* = y + g^*$$

(Best applied to a class or type of stocks.)

Most volatility in REIT prices due to changes in mkt expectns about  **$g^*$**  &  **$r$** .

## Analysis Tips for Valuing a REIT:

### 1. Build up the REIT value in 2 steps:

- 1<sup>st</sup> value the “same store” existing assets.
- 2<sup>nd</sup> add the value of *positive NPV* “growth opportunities”(unexercised options, entity-level value creation) – this is very dependent on the REIT’s mgt. (This is not routine earnings plowback growth via zero-NPV expansion.)

### 2. The GGM can be applied either to dividends or to earnings:

- Dividend application must include “plowback” effect & mgt dividend policy (“sticky yield”). Note that zero-NPV expansion of the REIT does not generally add any value to the REIT. (Miller-Modigliani: Irrelevance of Dividend Policy.) Therefore:
- Often better to apply GGM to REIT earnings rather than dividends. (Can provide a “reality check”, can be based more completely on “same-store” property level analysis, which is more transparent and solid than future growth stories.

***Reality Check:*** In long run (in absence of  $NPV > 0$  growth opportunities):  
High Price/Earnings Ratio → Either low  $r$ , or high same-store levered  $g_E$ .  
How sustainable is a low  $r$ ?; How realistic is a high same-store levered  $g_E$ ?;  
Where does  $NPV > 0$  come from?

**Analysis Tip: The GGM can be applied either to dividends or to earnings...**

Consider a REIT with no positive NPV opportunities

( *Do such opportunities really exist, anyway?...*  )

This is the suggested first step in building up the REIT value.

*What is the relationship between dividends & earnings in the GGM context?...*

$$E = \frac{AFFO_1}{r - g_E} = \frac{DIV_1}{r - g}, \quad DIV_1 < AFFO_1, \quad g > g_E$$

$g$  = Long-run growth rate in **dividends** per share (includes effect of “plowback”).

$g_E$  = Long-run growth rate in **earnings** (AFFO) of pre-existing (“same-store”) assets.

$DIV_1 = (1-p)AFFO_1 = (1-p)y_E E_0$ , where  $p$  is the “plowback ratio”, and :

$y_E$  = equity income yield from firm’s underlying asset equity [=AFFO/E, or @ property level  $\approx$  EBTCF/(V-D)],

$E_0$  = firm’s underlying asset equity value at the beginning of Year 1. Then:

$$DIV_2 = (1-p)y_E E_1 = (1-p)y_E [(1+g_E)E_0 + py_E E_0] = (1-p)y_E (1+g_E+py_E)E_0 = (1+g_E+py_E)DIV_1.$$

$$\rightarrow g = g_E + py_E, \rightarrow g_E = g - py_E.$$

**Note:** For a REIT, in the absence of growth opportunities (all acquisitions @ NPV=0),  $E_0$  is essentially based only on the firm’s assets in place, and  $y_E$  is the current equity yield of those assets. Thus,  $g_E$  is essentially the long-run growth rate in “same store” earnings (EBTCF as levered).

$$E = \frac{AFFO_1}{r - g_E}, \Rightarrow r - g_E = \frac{AFFO_1}{E} = \frac{1}{\text{Price / Earnings Ratio}}. \Rightarrow P / E = \frac{E / Sh}{AFFO_1 / Sh} = \frac{1}{r - g_E} = \frac{1 - p}{r - g}$$

# This is $g$ . . .

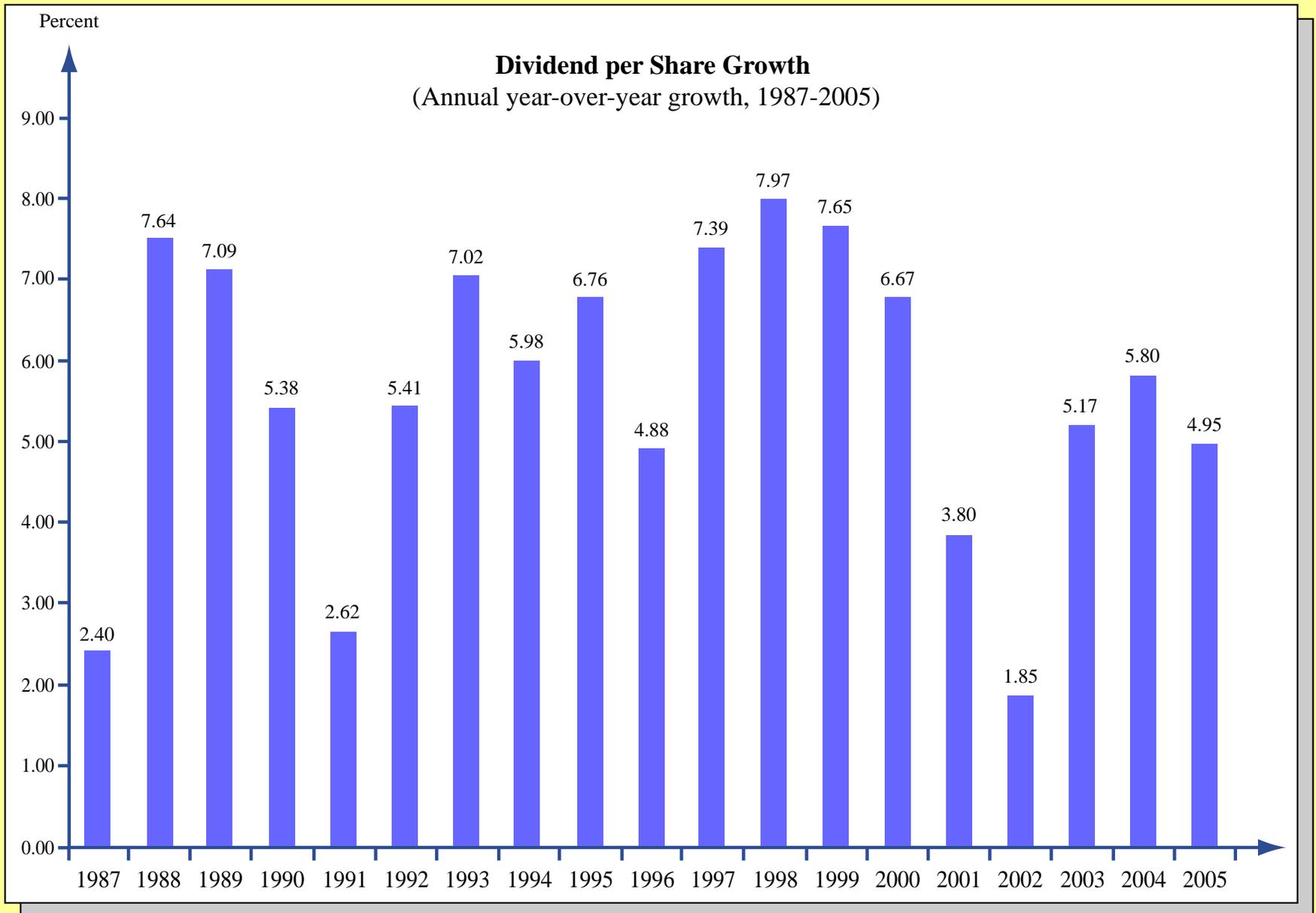


Figure by MIT OCW.

This is not  $g_E$  because it's not “*same store*”...

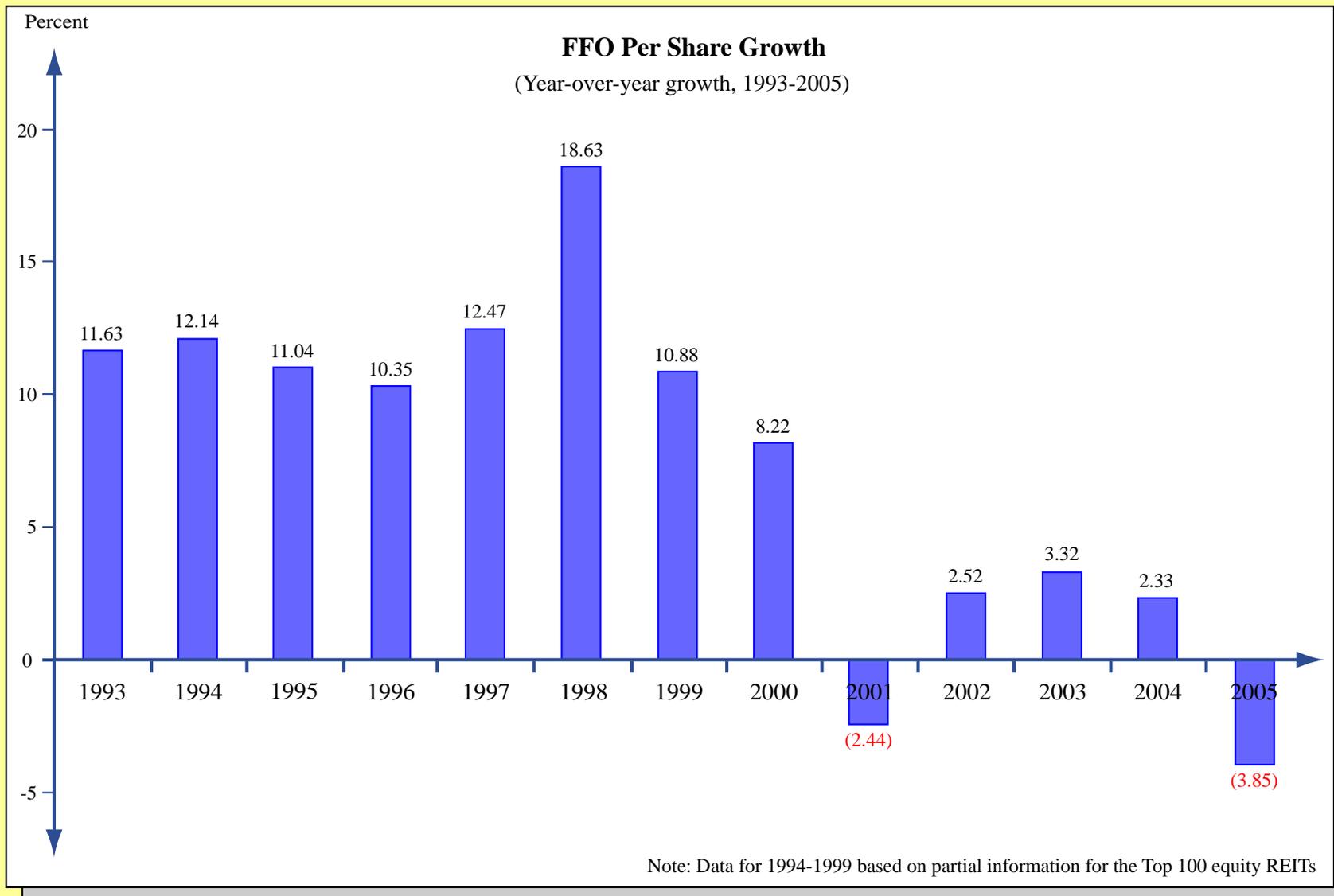


Figure by MIT OCW.

Compare to previous slide to see “dividend smoothing”. 37

This brings us to third of three steps to deriving  $g^*$  in GGM:

$$E = DIV_1 / (r - g^*) :$$

1. 1<sup>st</sup> step was to start with realistic same-store growth rate:  $g_E$ .
2. 2<sup>nd</sup> step was to then consider realistic sustainable *plowback* rate ( $p$ ) to get:  $g = g_E + py_E$  (where  $y_E$  = levered equity cash yield of properties: EBTFCF / V (less entity level G&A)).
3. Finally now add effect (if any) of positive NPV opportunities (micro level options, entity-level value creation) to get  $g^*$ , where  $g^* \geq g$  :

Value of Firm (E) = Value of Existing Assets in Place (less debt)  
+ Net Value of Growth Opportunities

$$E = \frac{(1-p)AFFO_1}{r-g} + NPV(\text{growth opportunities})$$

$$= \frac{AFFO_1}{r-g_E} + NPV(\text{growth opportunities})$$

*Value of assets in place less debt*

$$= \frac{DIV_1}{r-g^*} = \frac{(1-p)AFFO_1}{r-g^*}$$

*Collapsing it into the GGM framework:  $g^*$  is larger than  $g$  without growth opportunities.*

*NPV > 0 growth opps. result in high REIT price to earnings multiples →*

$$E / AFFO_1 = P / (AFFO_1 \text{ per share}) = \frac{(1-p)}{r-g^*}$$

## Summary & review up to here . . .

**$g^*$**  is very important ( 1 pt  $\Delta g^* \rightarrow > \approx 20\% \Delta E$  ). Reflects:

- LR growth in EBTFCF (sustainable “**same store growth**” + “**plowback**”).
- LR ability of REIT mgt to generate “**growth opportunities**” (NPV>0 projects): difference between  $g^*$  and  $g$  (or  $g_E$ ).

**Same store growth (  $g_E$  )** (existing property cash flow growth) is pretty *mundane*:

- Easy to quantify, Easy to predict,
- Usually not very exciting (R.E. “bricks & mortar” are “*cash cows*”, not “*growth stars*”, though use of *leverage* can make more exciting).

**Plowback (  $g$  )** (NPV=0 acquisition of assets) is more uncertain:

- How long can firm find new acquisitions at NPV=0?
- But analyst can “short-cut” around this question by using AFFO (earnings) version of GGM (as noted on previous slides).

**Growth opportunities (  $g^*$  )** (NPV>0 actions) is the more interesting source of growth:

- More uncertain & difficult to predict (how realistic?, How sustainable?),
- More volatility in mkt expectns about magnitude of NPV>0 opportunities.

**Positive NPV growth opportunities:**

**Micro (property) level:** *Buy Low or Sell High Deals; “Arbitrage” betw publ & priv mkts; Entrepreneurial/Innovative Development; Creative Mgt of Operations.*

**Macro (firm) level:** *Economies of Scale; Franchise Value; Rental Mkt Dominance; etc.*

## Assumptions about growth environment

Case 1: No expansion [no plowback ( $p = 0$ ),  $DIV_1 = AFFO_1$ ]

$$E = \frac{DIV_1}{r - g_E} = \frac{AFFO_1}{r - g_E}$$

Case 2: Internally Financed Expansion but no Growth Opportunities

$$E = \frac{DIV_1}{r - g} = \frac{(1 - p)AFFO_1}{r - g} = \frac{AFFO_1}{r - g_E}$$

$$0 < p < 1$$

$$g = g_E + p(r - g_E) = g_E + py_E$$

Case 3: Internally Financed Expansion and Growth Opportunities

$$E^* = E + NPV(\text{growth opportunities})$$

$$\begin{aligned} E^* &= \frac{(1 - p)AFFO_1}{r - g} + NPV(\text{growth opportunities}) \\ &= \frac{AFFO_1}{r - g_E} + NPV(\text{growth opportunities}) \end{aligned}$$

$$E^* = \frac{DIV_1}{r - g^*} = \frac{(1 - p)AFFO_1}{r - g^*}$$

## 23.2.3 Fundamental Growth Opportunities

Are REITs *growth stocks* or *income stocks*?...

Beneficial of Boston (**BOB**): An “income REIT”...

Owens properties that pay \$100 million / yr, in perpetuity, no debt.

$$\text{OCC} = r = 10\%; \quad g = 0.$$

Using GGM, BOB’s equity is worth:

$$E_{BOB} = \frac{\$100 \text{ million}}{0.10 - 0.0} = \frac{\$100 \text{ million}}{0.10} = \$1000 \text{ million}$$

**Sioux Realty (Sioux): A “growth REIT”...**

**Sioux owns stabilized operating properties like BOB’s that pay \$50 million / yr in perpetuity, no debt, *plus*:**

**Land on which a completed project worth \$3000 million in one year can be built, at a cost of \$2400 million construction. Due to the risk in this development project (note the operational leverage), the OCC for this project is 20%.**

**Thus, Sioux’s value is:**

$$\begin{aligned} E_{SIoux} &= PV(Existing) + PV(Growth) \\ &= \frac{\$50 \text{ million}}{0.10 - 0.0} + \frac{\$600 \text{ million}}{1 + 0.20} \\ &= (\$500 + \$500) \text{ million} \\ &= \$1000 \text{ million} \end{aligned}$$

**BOB's and Sioux's Price/Earnings multiples are:**

$$(E / AFFO)_{BOB} = \frac{\$1000 \text{ million}}{\$100 \text{ million}} = 10$$

$$(E / AFFO)_{SIOUX} = \frac{\$1000 \text{ million}}{\$50 \text{ million}} = 20$$

*If they pay out all their income as dividends, what are the current yields of these two REITs?*    Answer: *BOB yield = 10%, Sioux yield = 5%.*

*Why is Sioux a “growth REIT”?...*

*Is it because Sioux “does development projects”?...*

*Suppose Sioux did not already own the land (and were similar to the “second best developer” on the site)?*

## ***Growth stocks have positive NPV opportunities.***

**Value of Firm Equity (E) = Value of Existing Assets in Place (less debt) + Net Value of Growth Opportunities**

$$E = \frac{(1-p)AFFO_1}{r-g} + NPV(\text{growth opportunities})$$

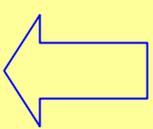
$$= \frac{AFFO_1}{r-g_E} + NPV(\text{growth opportunities})$$

*Value of assets in place less debt*



$$= \frac{DIV_1}{r-g^*} = \frac{(1-p)AFFO_1}{r-g^*}$$

*Collapsing it into the GGM framework:  $g^*$  is larger than  $g$  without growth opportunities.*



***NPV > 0 growth opps. result in high REIT price to earnings multiples ...***

$$E/AFFO_1 = P/(AFFO_1 \text{ per share}) = \frac{(1-p)}{r-g^*}$$

## Typical sources of growth ( $NPV > 0$ ) opportunities in REITs (if any):

- Developable land already owned.
- Entrepreneurial abilities (in devlpt, or possibly other activities).
- Macro-level abilities  
(scale economies?, franchise value?, econ of scope?).
- **Differential property asset valuation in stock vs private property markets.**

### 23.2.4

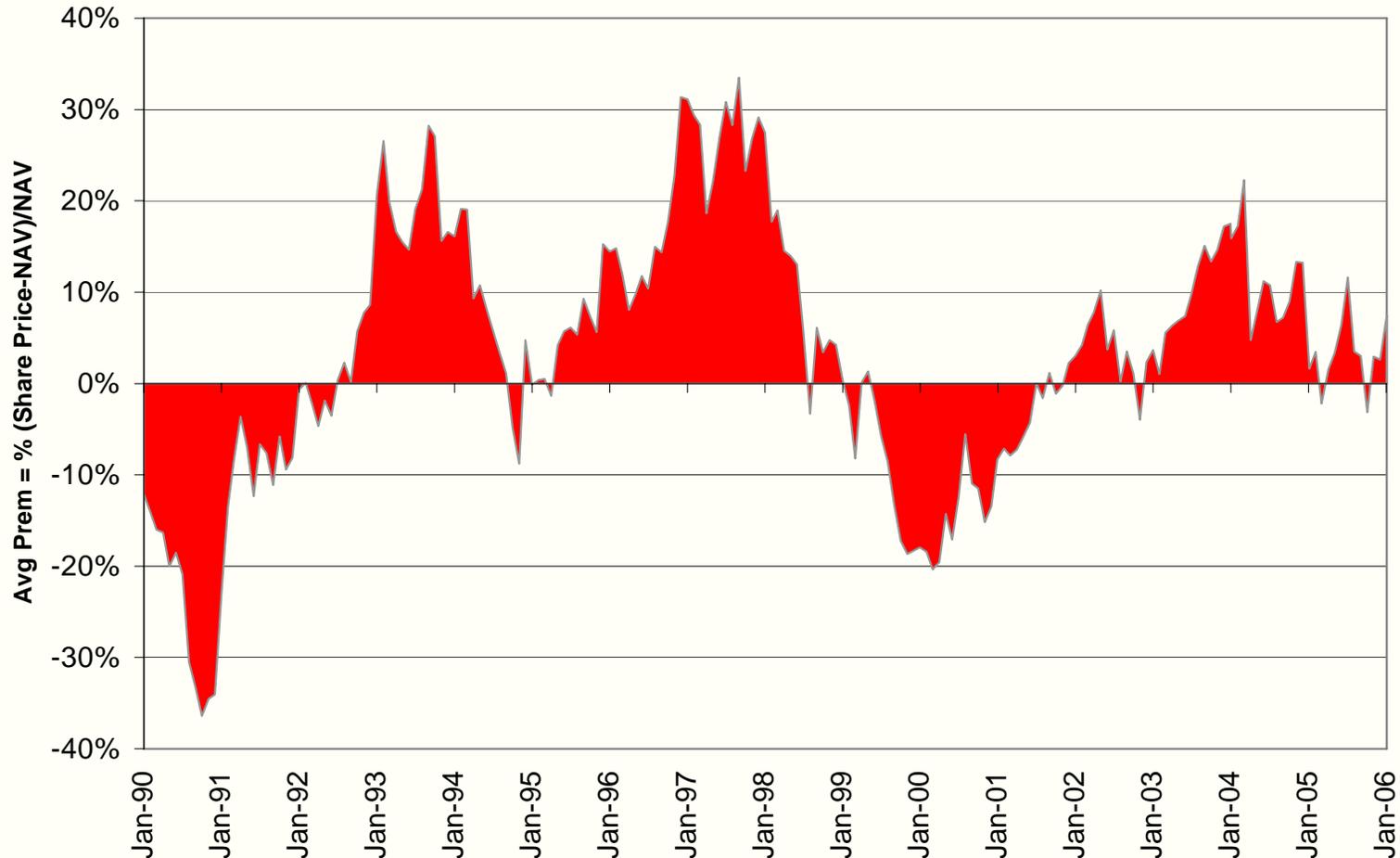
*“Most REITs are not growth stocks most of the time, but some REITs are growth stocks most of the time, and most REITs are growth stocks some of the time.”*

*Last case is possible because of...*

## 23.2.5 Parallel Asset Markets and NAV-Based Valuation

*Public versus Private Market Pricing of Real Estate Equity ...*

*REIT Share Price Premium to NAV*



Source: Green Street Advisors

*Based on Green Street P/NAV data and NAREIT Equity Price Index.*

## What is REIT “NAV” ? . . .

$$\begin{aligned} \text{Net Asset Value} = & \text{REIT Assets Value (as valued in } \textit{property market} \text{ *)} \\ & - \text{REIT Liabilities}^{**} \\ & \div \text{No. Shares Outstanding} \end{aligned}$$

\* *As estimated by REIT analyst, e.g.: “mass appraisal”:*

- Divide REIT holdings into major market segments (e.g., Offices in Boston, Warehouses in Chicago);
- Identify NOI (like EBITDA) associated with each segment;
- Estimate current property mkt prevailing “cap rates” in each segment;
- Apply estimated cap rates to estimated NOI to estimate asset value in each segment.
- Add and adjust for: (i) Land holdings & construction in progress; (ii) Non-asset-based earnings (e.g., prop.mgt fees) using estimated P/E ratio.

\*\* Theoretically should be market value of debt (often book value used in practice).

**Comparison of resulting NAV with the stock mkt based share price:**

→ Stock Mkt / Property Mkt Valuation Differential,

→ *Stock Value – NAV = NPV of REIT Growth Opportunities (as valued by the stock mkt); &/or...*

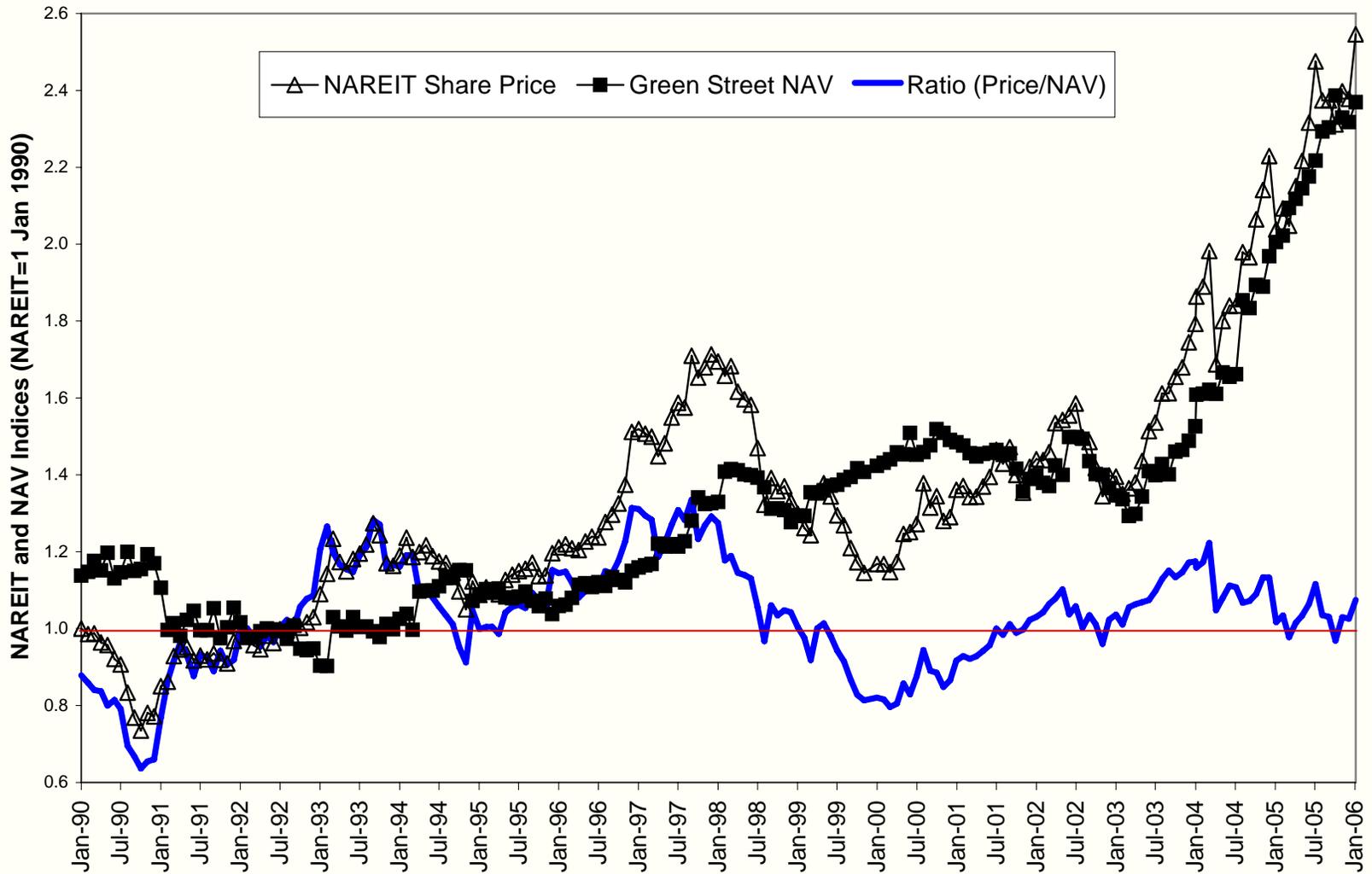
→ Errors or omissions in the NAV estimation process.

## Cash Flows and Asset Valuation in the Private Property and Public REIT Markets

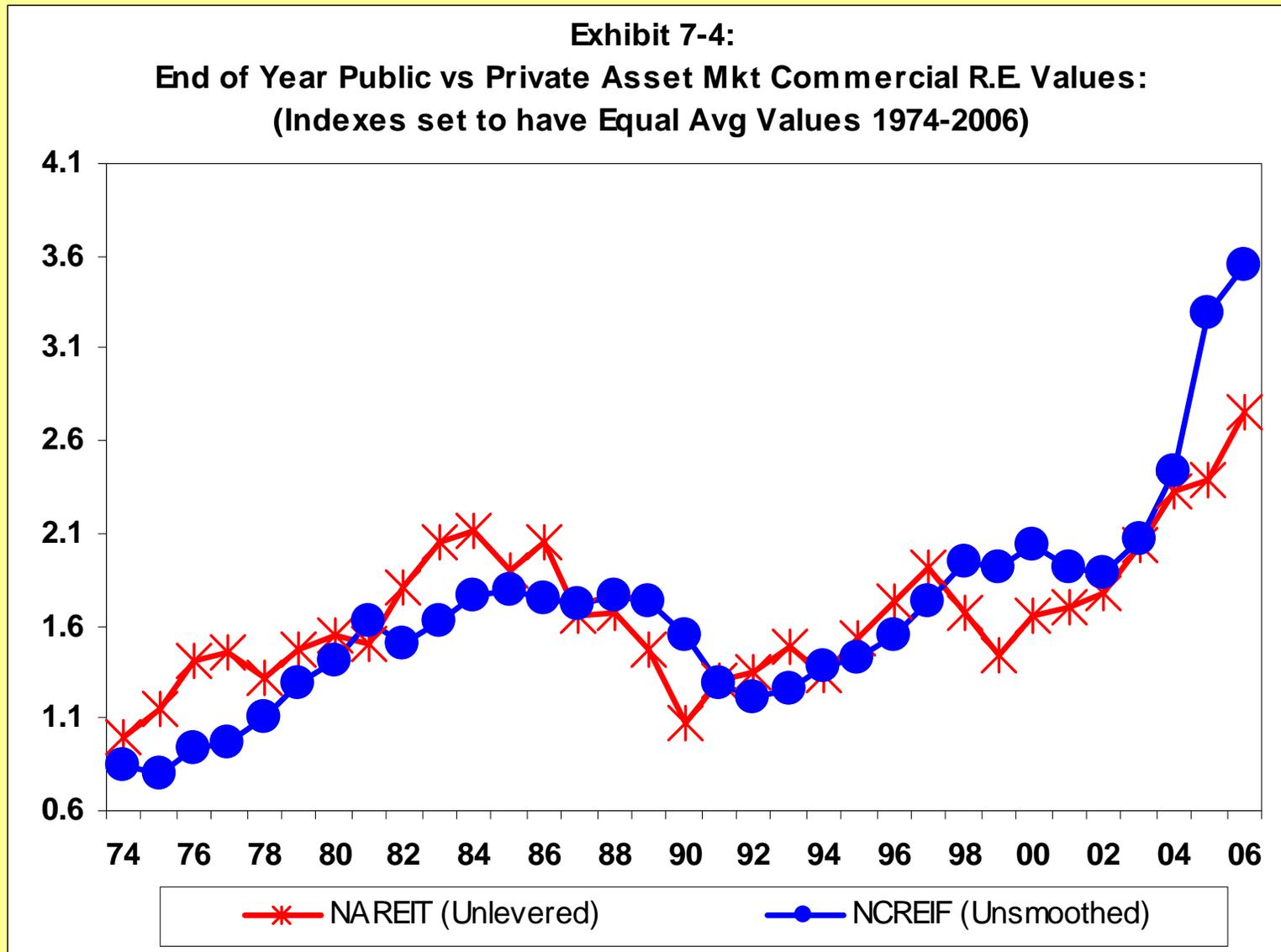
Private Property Market	Public REIT Market
<i>Annual Cash Flows from Operations</i>	<i>Annual Cash Flows from Operations</i>
Effective Gross Income (EGI) - Operating Expenses (OEs) = <b>Net Operating Income (NOI)</b> - Capital Improvement Expenditures (CI) = <b>Property-Before-Tax Cash Flow (PBTCF)</b> - Debt Service (DS) = <b>Equity-Before-Tax Cash Flow (EBTCF)</b>	Effective Gross Income (EGI) - Operating Expenses (OEs) = <b>Net Operating Income (NOI)</b> - Corporate Overhead (G&A Expenses) = <b>EBITDA</b> (Earnings Before Interest, Taxes, Depreciation, and Amortization) - Interest = <b>Funds from Operations (FFO)</b> - Adjustment for Straight-Lining Rents - Amortization of Mortgage Debt - Capital Improvement Expenditures (CI) = <b>Adjusted Funds from Operations (AFFO)</b>
<i>Valuation</i>	<i>Valuation</i>
$\text{Asset Value} = \frac{\text{NOI}}{\text{Cap Rate}}$	Share Price = (AFFO/share)*(P/AFFO Multiple) Share Price = (NAV/share)*(Prem. to NAV)

Figure by MIT OCW, adapted from course textbook.

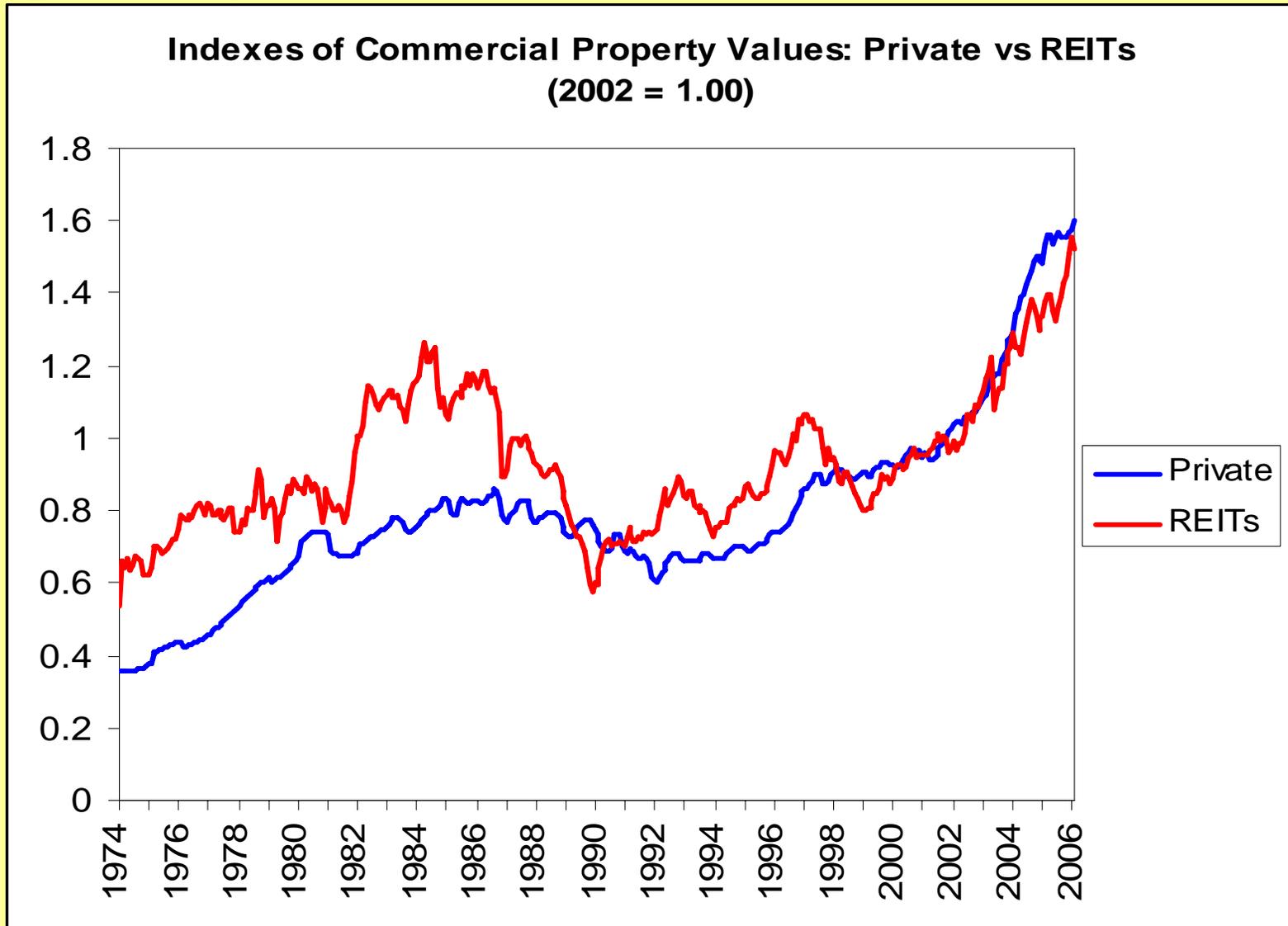
# Another perspective on this same point (from Chapter 12) ...



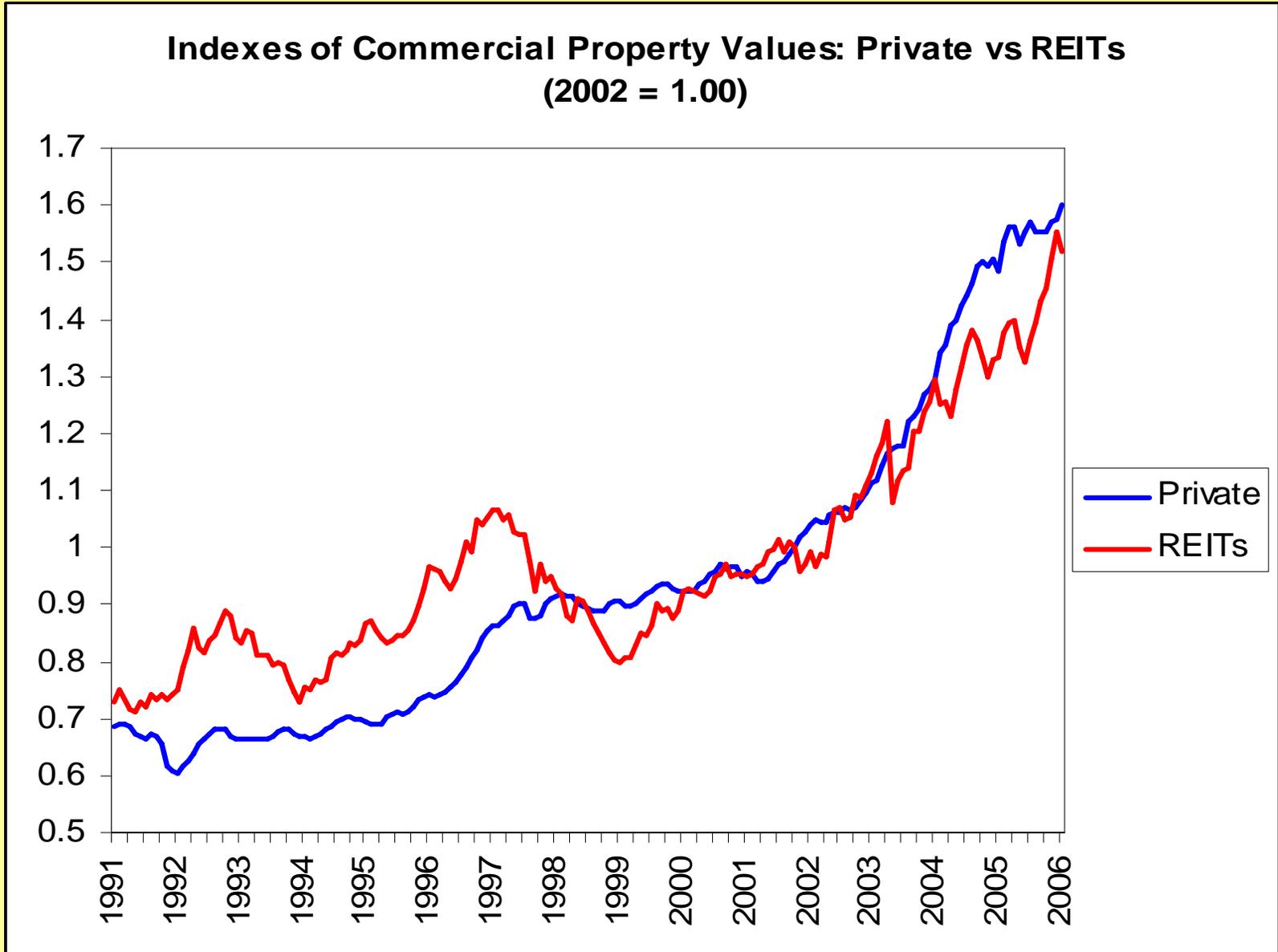
Another perspective on this point (update of Exh.7-4 from Chapter 7) . . .



Another perspective on this point (here monthly, with private R.E. represented by transactions-based indexes) . . .



Zeroing in on 1991-2006 period . . .



## *The point is . . .*

- REIT-based valuations & private property mkt-based valuations appear to be different much of the time.
- These differences do not appear to be explainable by differences in the underlying operating cash flows of the REITs vs the private properties; nor are they explainable entirely by purely *firm-level* considerations (e.g., debt financing, entity-level mgt, trading, etc.).
- Thus, at least part of these differences appear to be ***micro-level valuation differences***, differences in the two markets' perceptions of the values of the *same* underlying properties as of the same point in time (“*micro-level*” = “*bricks & mortar*”, *underlying assets as opposed to firm-level effects*).
- There is some evidence that REIT valuations tend to be a bit more volatile, and to *lead* the private property market valuations in time (based on timing of major cyclical turning points, the lead may be up to 3 years.)
- There is also some tentative evidence that the differences between the two markets may be diminishing in recent years (faster “mean reversion” of P/NAV differential).

# Major investment issues of the valuation difference:

1. Which market should the investor use to make real estate investments: public (REIT), or private (direct property)?
2. Is there scope for “*arbitrage*” between the two markets? That is, can (nearly) *riskless* profits be earned by moving assets from one ownership form to the other:
  - Taking private assets public via REIT acquisition or IPO?;
  - Taking REIT assets private via buyout/privatization or simply via sale of assets or secured debt in the private market?
3. What is the nature and magnitude of the *micro-level* differential valuation (and which value is “*correct*”)?

## Two ways to consider the micro-level differential valuation: Longitudinal & Cross-sectional

### Longitudinal (across time) difference:

- REIT mkt *leads* private market (not perfectly, but...):
  - Info flows from **Public** → **Private** (mkt as whole)  
(Public mkt more informationally “efficient”.)

### Cross-sectional (across REITs) difference:

- Private Mkt NAVs **contain information** (again, not perfect, but...)
  - Low P/NAV REITs tend to rise, & vice versa.  
(Public mkt tends to “overshoot” or “herd”.)
  - Info can flow from **Private** → **Public** (specific REITs)

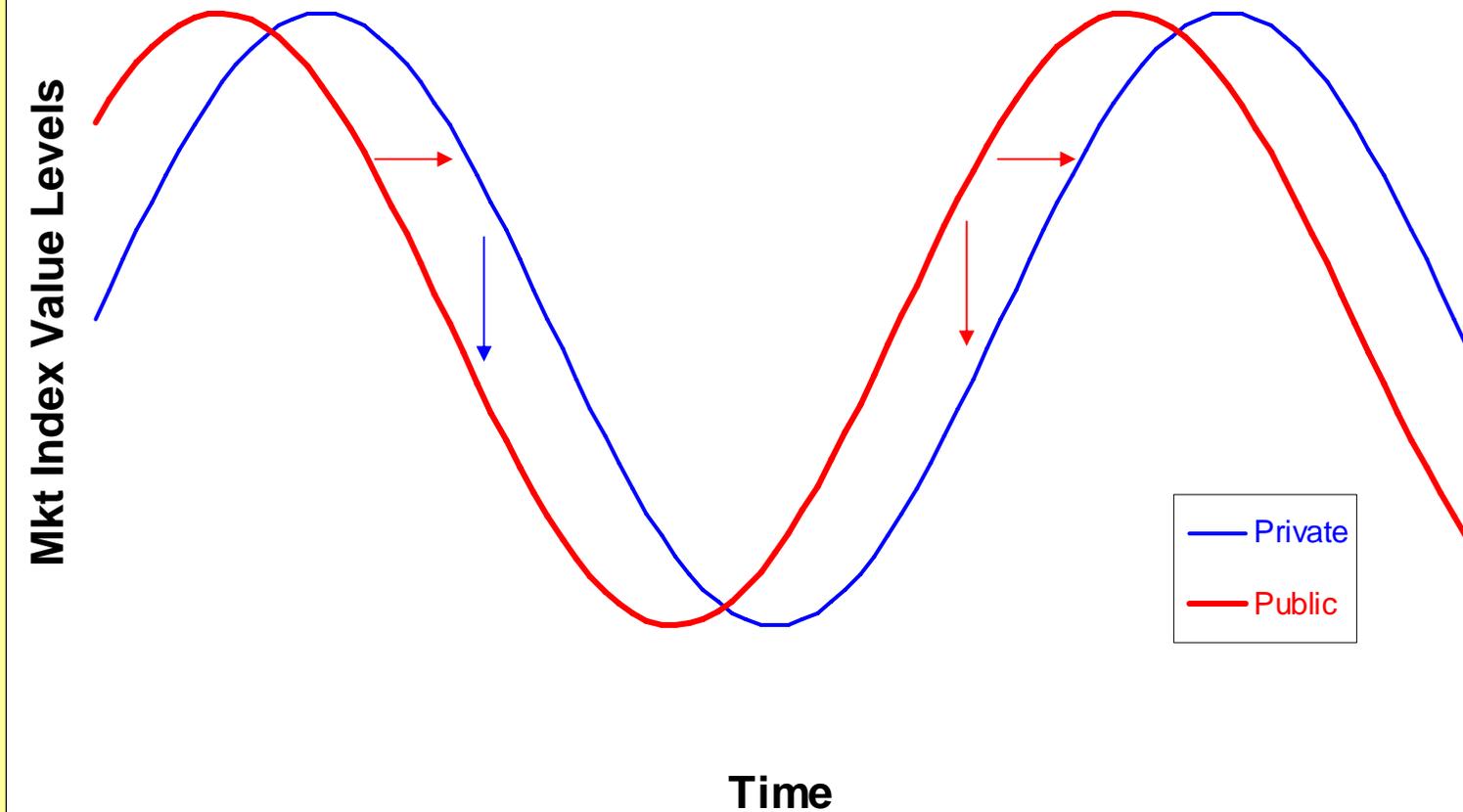
Aside: *Recent development in the relation between the two markets . . .*

Regarding the *longitudinal* (aggregate) relationship:

- Traditional wisdom (and historical evidence) suggests *REITs lead Private* (REIT → Private).
- But recent behavior (post 2001) may suggest otherwise: greater contemporaneous link, or even *Private leading REITs* (Private → REIT).
- This phenomenon corresponds to the broad growth in private equity investments and massive capital flows into private assets including real estate following the “dot.com bubble burst” in the stock mkt.
- It also may be related to REITs owning a larger share of properties in many mkt segments, such that private investors in the direct property market are more influenced by REIT capital.

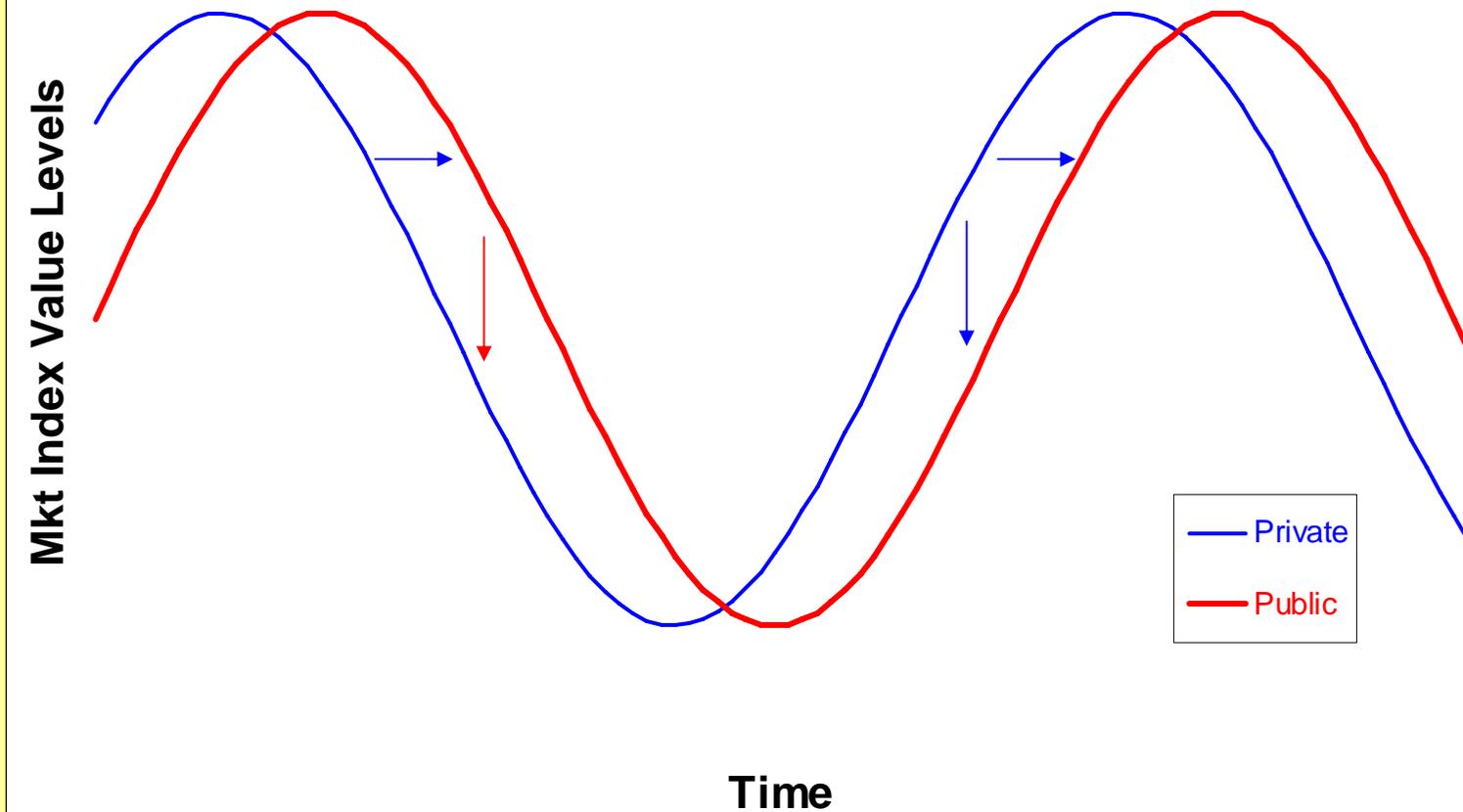
If **Public** → **Private**, then:

- **Public** > **Private** when values are *rising*;
- **Private** > **Public** when values are *falling*.

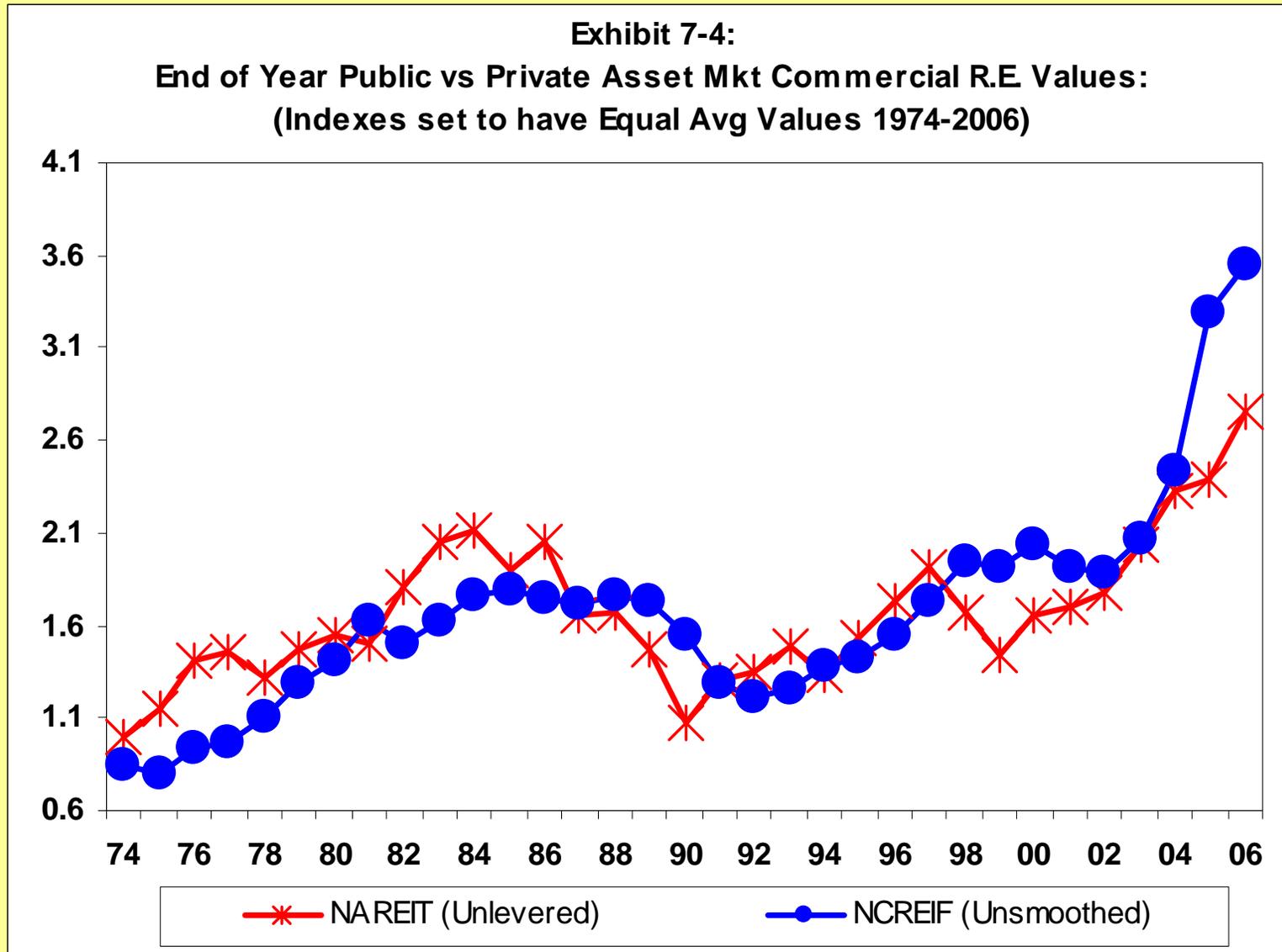


If **Private** → **Public**, then:

- **Private** > **Public** when values are *rising*;
- **Public** > **Private** when values are *falling*.

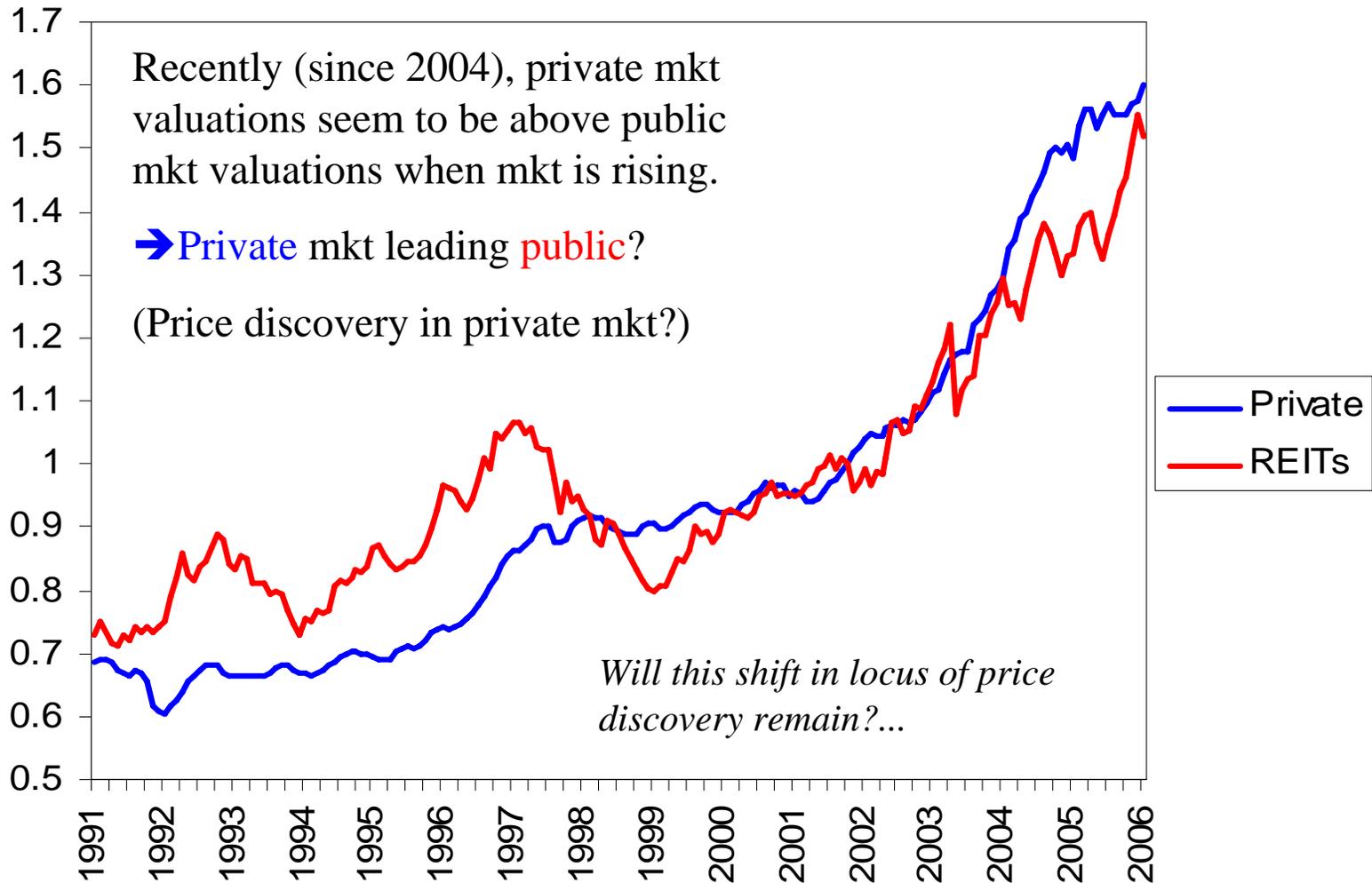


Red used to be left of blue, but lately the opposite . . .



Red used to be left of blue, but lately the opposite . . .

### Indexes of Commercial Property Values: Private vs REITs (2002 = 1.00)

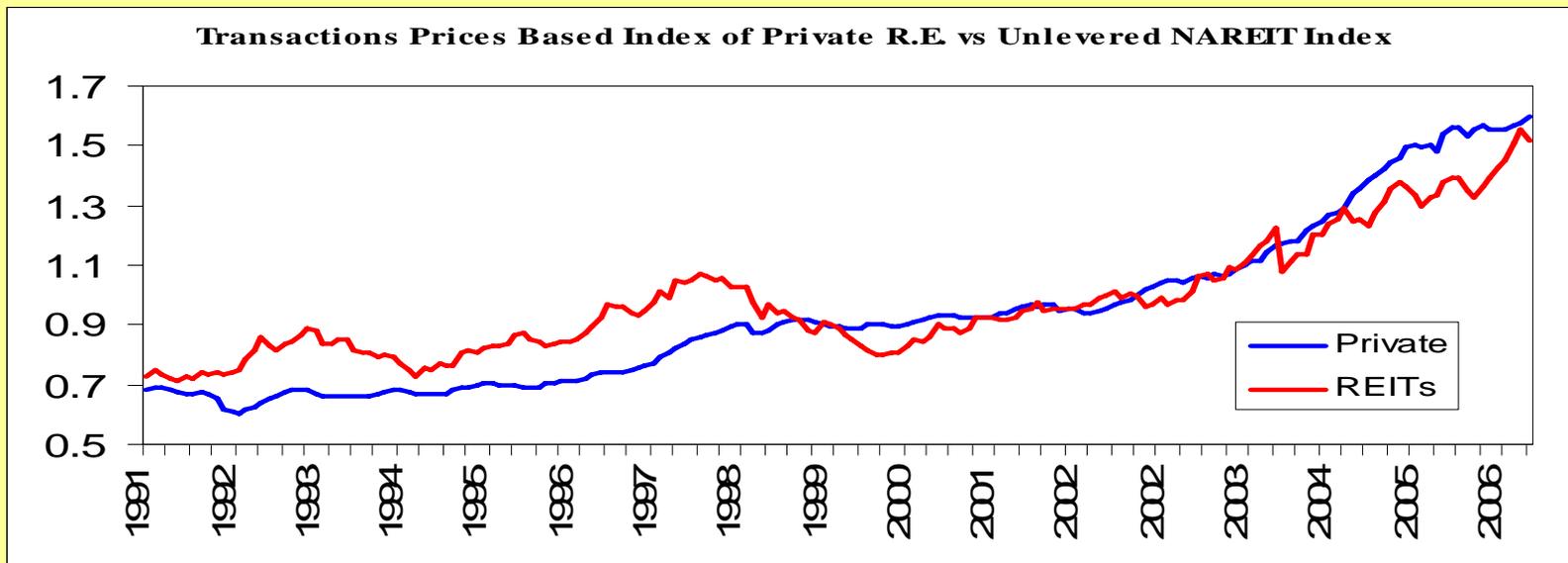


Green Street P/NAVs don't in aggregate show Private > Public . . .



Figure by MIT OCW.

But if equal in 2002, then transactions-based indexes & de-levering REITs → Private > Public by end of 2006 . . .



*From Chapter 12 (Section 12.3)...*

## **Definition of the micro-level valuation difference:**

*For specific individual properties:*

$$\mathbf{IV}_{\text{REIT}} \neq \mathbf{MV}_{\text{PRIV}}$$

*(Recall that stock mkt makes:  $IV_{\text{REIT}} = MV_{\text{REIT}}$  in share price.)*

**Thus, if a micro-level valuation difference exists, then profitable ( $\text{NPV} > 0$ ) opportunities exist for REITs by buying or selling properties in the private property market.**

**This is often referred to as (positive or negative) “*accretion*” opportunity for REITs:**

***REIT Buying:***  $\text{NPV}_{\text{MV}}(\text{REIT}) = \text{NPV}_{\text{IV}}(\text{REIT}) = \mathbf{IV}_{\text{REIT}} - \mathbf{MV}_{\text{PRIV}}$

***REIT Selling:***  $\text{NPV}_{\text{MV}}(\text{REIT}) = \text{NPV}_{\text{IV}}(\text{REIT}) = \mathbf{MV}_{\text{PRIV}} - \mathbf{IV}_{\text{REIT}}$

***Mitigated by transaction costs and management or firm-level considerations.***

**When REIT valuation > Private valuation (positive REIT premium to NAV):**

- REITs have growth opportunities ( $NPV > 0$ , “*accretion*”) from buying in the private market.
- REITs raise capital by issuing stock in the public mkt, use proceeds to buy properties.

**When REIT valuation < Private valuation (negative REIT premium to NAV):**

- REITs are no longer “*growth stocks*”, and their shares are re-priced accordingly in the stock market (price/earnings multiples fall, REITs are priced like “*value stocks*”, or “*income stocks*”).
- In the extreme, REITs may become “*shrinking stocks*”, maximizing shareholder value by selling off property equity (or debt) and paying out proceeds in dividends.

The 2 mkts swing between these 2 conditions, also with periods when they are nearly equal valued.

Little “arbitrage trading” occurs when the 2 mkts are within 5%-10% of each other’s valuations (due to transaction costs, firm-level effects).

Arbitrage trading tends to keep valuation differences to less than 15%-20%, but occasionally greater differences have briefly occurred.

**How can a REIT “*remain a public REIT in business*”, and still maximize shareholder value during times when the stock market valuation of real estate is *less than* the private property market valuation? . . .**

$$IV_{\text{REIT}} < MV_{\text{PRIV}}$$

- **Sell into the private market most but not all of the equity in many of their properties (e.g., sell properties into a partnership controlled by the REIT, with passive equity partners), paying out proceeds in extraordinary dividends (or stock purchases), while retaining effective operational control over the assets (e.g., sell to *passive* partners, such as pension funds): → REIT retains scale & operational product.**
- **Issue secured debt (mortgages) collateralized by the excess of  $MV_{\text{PRIV}}$  over  $IV_{\text{REIT}}$ , paying out proceeds as extraordinary dividends. ( ← *Risky.*)**
- **Sell some of their properties outright into the private market (paying proceeds as dividends or stock purchase), but subject to contracts to retain the REIT as property manager (TRS).**
- **If private market valuations are sufficiently high (and expected to remain so), consider going into development projects with most financing coming from external private equity and debt sources: → Use the REIT’s entrepreneurial capability; Use developable land already owned; Maximize leverage of private market valuation. (*Note: Though tempting, this strategy is risky at the peak of a private market cycle.*)**
- **Reinvest proceeds from domestic private market sales into international real estate assets where valuations are lower (yields are higher).**

# Causes of micro-level valuation differential: Two possible sources: CFs & OCC

*(Recall DCF valuation formula.)*

## **The CF-based source: Idiosyncratic valuation differences:**

- Affects specific properties or specific REITs.
- Caused by differential ability to generate firm-level incremental CF from same properties (e.g., REIT scale economies, franchise value, space market monopoly power, adjacent prop spillover, etc.)

## **The OCC-based source: Market-wide valuation differences:**

- Affects all properties, all REITs.
- Reflects different informational efficiency (REIT lead).
- Reflects different investor clienteles and different market functioning leading to different liquidity, different risk & return patterns in the investment results, causing differential perceptions or pricing of risk.

*Note: Some REIT mgt actions, such as capital structure (financing of the REIT), property devlpt or trading strategy, etc., affect firm-level REIT value but not micro-level property valuation (of existing assets in place).*

## Which valuation is “*correct*”? . . .

*Would you believe...*

**They both are?**

**(Each in their own way, for their relevant investor clientele.)**

*But keep in mind...*

- **Tendency of REIT market to *lead* private mkt (sometimes up to 3 years). (Recall longitudinal difference noted earlier.)**
- **Tendency of REIT market to exhibit “*excess volatility*”:**
  - **transient “*overshooting*” of valuation changes, followed by “*corrections*”. (Also recall cross-sectional difference noted earlier.)**
- **Two markets sometimes exhibit a “*tortoise & hare*” relationship (both can “*learn*” from the other).**

*It is worth reviewing Section 12.3.5 at this point...*

### **12.3.5: Risk is in the object not in the beholder.**

*(Remember from Ch.10: Match disc.rate to the risk of the investment whose CFs are being discounted.)*

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":  $r = y + g$ .]

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, if the REIT market currently has a 10% premium over the private property market in valuation?**

Answer: \$13,750,000, analyzed as follows...

Prop.X Val in Priv.Mkt = \$12,500,000 = \$1,000,000 / 0.08

= \$1,000,000 / (8.5% - 0.5%), where  $y = r - g$ , as const.growth perpetuity.

Prop.X Val in REIT Mkt = \$12,500,000 \* 1.1 = \$13,750,000, due to 10% premium.

Note: “cap rate” in REIT Mkt =  $1/13.75 = 7.27\%$ ,

→ OCC for REIT is  $r_x = 7.27\% + 0.5\% = 7.77\%$ , i.e.:  $\$13.75 = \$1/ (.0777 - .05)$ .

Note:

- Prop.X value for REIT is not equal to:  $\$1,000,000 / (11\% - 0.5\%) = \$9,524,000$ .
- OCC relevant for valuing Prop.X purchase for REIT is not 11% (REIT A's firm level WACC).
- Nor is relevant OCC equal to: Prop.X OCC in Private Mkt =  $8\% + 0.5\% = 8.5\%$ .

## *Example (cont.)...*

Same question for REIT B . . .

Answer: Same as value for REIT A:

Prop.X Val for REIT B =  $\$1,000,000 / (7.77\% - 0.5\%) = \$13,750,000$ .

- This is not equal to  $\$1,000,000 / (10\% - 4\%) = \$1,000,000 / 6\% = \$16,667,000$ , REIT B's P/E multiple applied to Prop.X earnings.
- Most of REIT B's assets must be higher risk and higher growth than Prop.X (perhaps REIT B mostly does development projects).

How much can Private Consortium "C" afford to pay for Prop.X?

Answer:  $\$12,500,000 = \$1,000,000 / 0.08 =$  The Private Mkt's Value.

How much should either REIT (A or B) pay for Prop.X?

Answer:  $\$12,500,000$ , since that is the private mkt MV, unless they have to compete with each other (or other REITs), & the resulting bidding war bids the price up above that.

## ***Example (1 last question...)***

Suppose REIT B can borrow money at 6% while REIT A must pay 7% for corporate debt. Does this mean REIT B can afford to pay more for Prop.X than REIT A, assuming both REITs would finance the purchase with corporate-level debt?...

Answer: No.

- The value of the asset in the firm's equity is unaffected by its corporate cost of debt.
- The firm's borrowing rate does not generally equal either its firm-level WACC or the specific OCC relevant for a given investment.

## 23.2.6 Agency Costs: Conflicts of Interest

*Some major issues to watch out for...*

### 1) Transaction bias in UPREITs:

- Due to tax-based conflict (different cost basis for LP investors vs public stock investors)?...

### 2) Real estate interests outside the REIT:

- Do REIT managers have other real estate interests that compete with the REIT's properties or for the managers' time & energy (other properties not in the REIT, other interests such as brokerage or management firms)?...

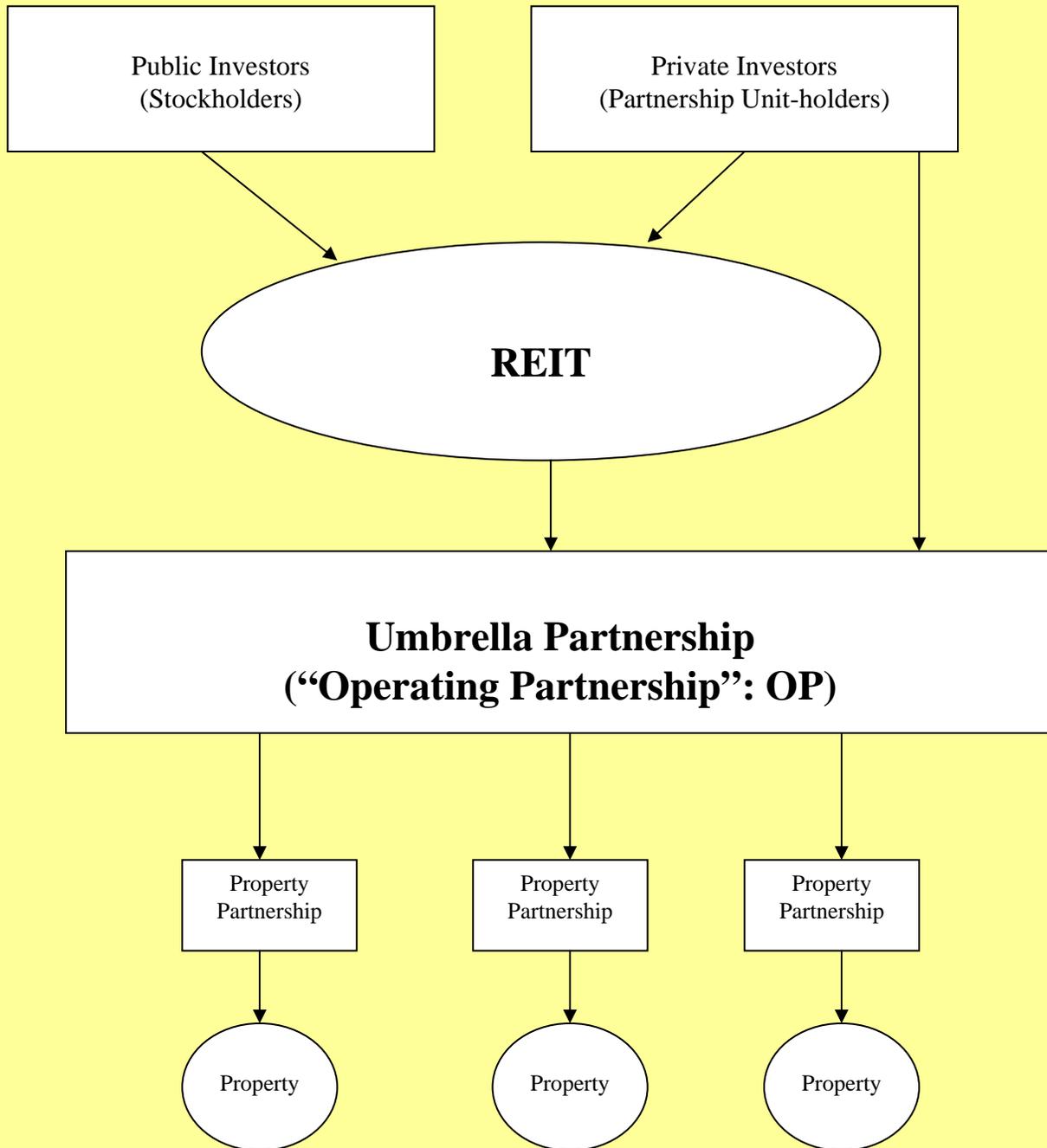
### 3) Potential for “self-dealing”:

- Do REIT managers have incentives to have the REIT engage in “Sweatheart” deals with brokerage, management, development firms in which they have interests?...

### 4) Take-over difficulties re “5-or-Fewer Rule”:

- REIT governance often makes hostile takeovers particularly difficult, in part due to 5-or-Fewer Rule.

*The*  
**“UPREIT”**  
*Structure*



## 23.3 Some Considerations of REIT Management Strategy

The traditional real estate cliché about the “3 determinants of value”:

***“Location, location, location”.***

The modern REIT cliché about the “3 determinants of value”:

***“Management, management, management”.***

### **Six major strategies or strategic considerations...**

#### **1) Financial strategy: “*Caught between a rock and a hard place*”...**

- REITs don't have traditional C-corp income tax-based rationale for use of debt financing. But REITs often need external capital (R.E. is capital-intensive, and REITs must pay out 90% of earnings). Various considerations enter the REIT capital structure equation:

- Stock market wants growth;
- Real estate is not a growth asset without lots of leverage (maximized by short-term or floating-rate debt);
- Stock market doesn't like REITs to be highly levered (especially with short-term or floating-rate debt).

→ Solution: ***walk the tightrope carefully.***

## 23.3 Some REIT Strategic Management Considerations (cont.)

### 2) Specialize (*know your market*):

- Be a “residential REIT” or a “retail REIT”, etc...
- Sometimes some combinations are “OK” (e.g., office & industrial)
- Geographical specialization is “*less cool*” (you gotta get scale economies somehow!)

### 3) Build “franchise value” (*brand name recognition?*):

- Improve tenant service with increased geographical and product scope.

### 4) Consider “vertical integration”:

- Land, Devlpt, Asset ownership, Property Mgt, Leasing, Tenant Svcs (logistics, communications, etc), Information (databank);
- Allows REIT to ride through periods when stock market undervalues real estate assets relative to the property market (sell most asset ownership into property market, retain control and ancillary functions, possibly develop new buildings);
- During periods of low property market asset valuation relative to the stock market, buy existing properties and bank buildable land).

## 23.3 Some REIT Strategic Management Considerations (cont.)

### 5) Take advantage of *Economies of Scale* (such as they are):

- Are there scale economies in REIT administrative costs?...
- Are there scale economies in REIT capital costs?...
- Where are the limits of such economies?...
- Are there economies of scope in REIT service provision?...

### 6) Try to develop some *market power* (“monopoly control”) in local space markets:

- Buy (or build) most of the space of a given type in a given local submarket;
- But beware, rare is the submarket that has no potential close substitute in the same metro area.

# REIT scale & consolidation

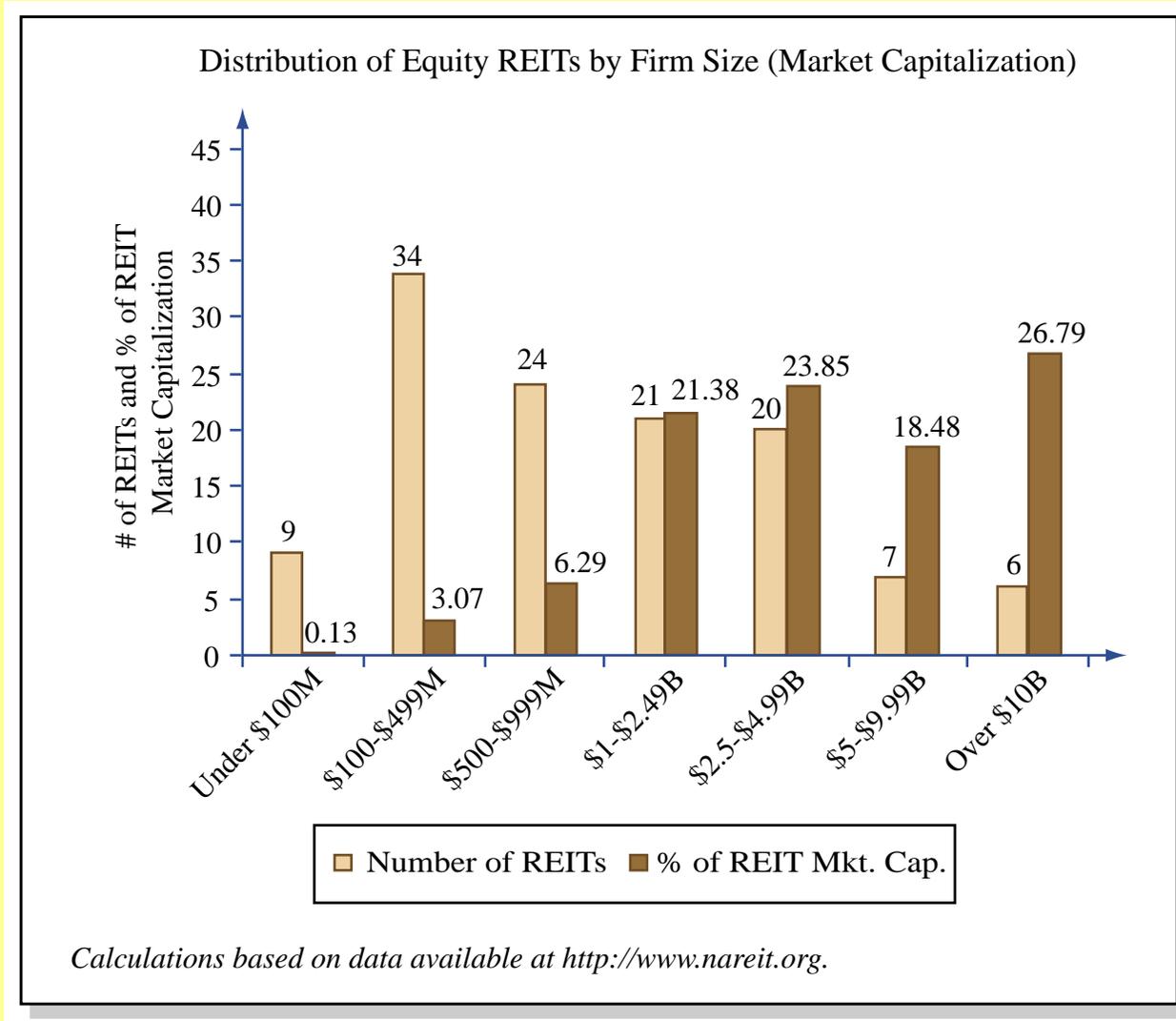


Figure by MIT OCW, adapted from course textbook.

## 23.4 Back to the REIT valuation question: **Two Models...**

### **1) *The REIT as a closed-end mutual fund:***

- It's just a collection of assets with an added layer of management (hence, added risk, added potential for agency cost);
  - Value creation only as a “pass-through” vehicle for passive investors wanting a real estate play...
- Trades at a discount below NAV (private property market asset value).

### **2) *The REIT as a vertically-integrated firm:***

- It's an entrepreneurial corporation (like other industrial and service companies in the stock market, possibly subject to some economies of scale);
  - Value creation via skillful management and generation of unique real estate ideas and options, providing some growth ( $NPV > 0$ ) opportunities...
- Trades at a premium to NAV (private property market asset value).

***Will the real REIT please stand up?...***  
***(Will the stock market always tar all REITs with the same brush?...)***  
***(Will the stock market always lurch between one model and the other?...)***

## **23.5 Some REIT investor considerations...**

### **1) Choosing between public (REIT) versus private (direct property) investment in real estate...**

- Direct investment in private R.E. has problems regarding illiquidity, need for active management and specialized local expertise, and lumpy scale (capital constraints).**
- But REITs provide less diversification in a stock-dominated portfolio, and have more volatile, less-predictable returns.**

**→ Small investors without specialized expertise should probably stick with REITs.**

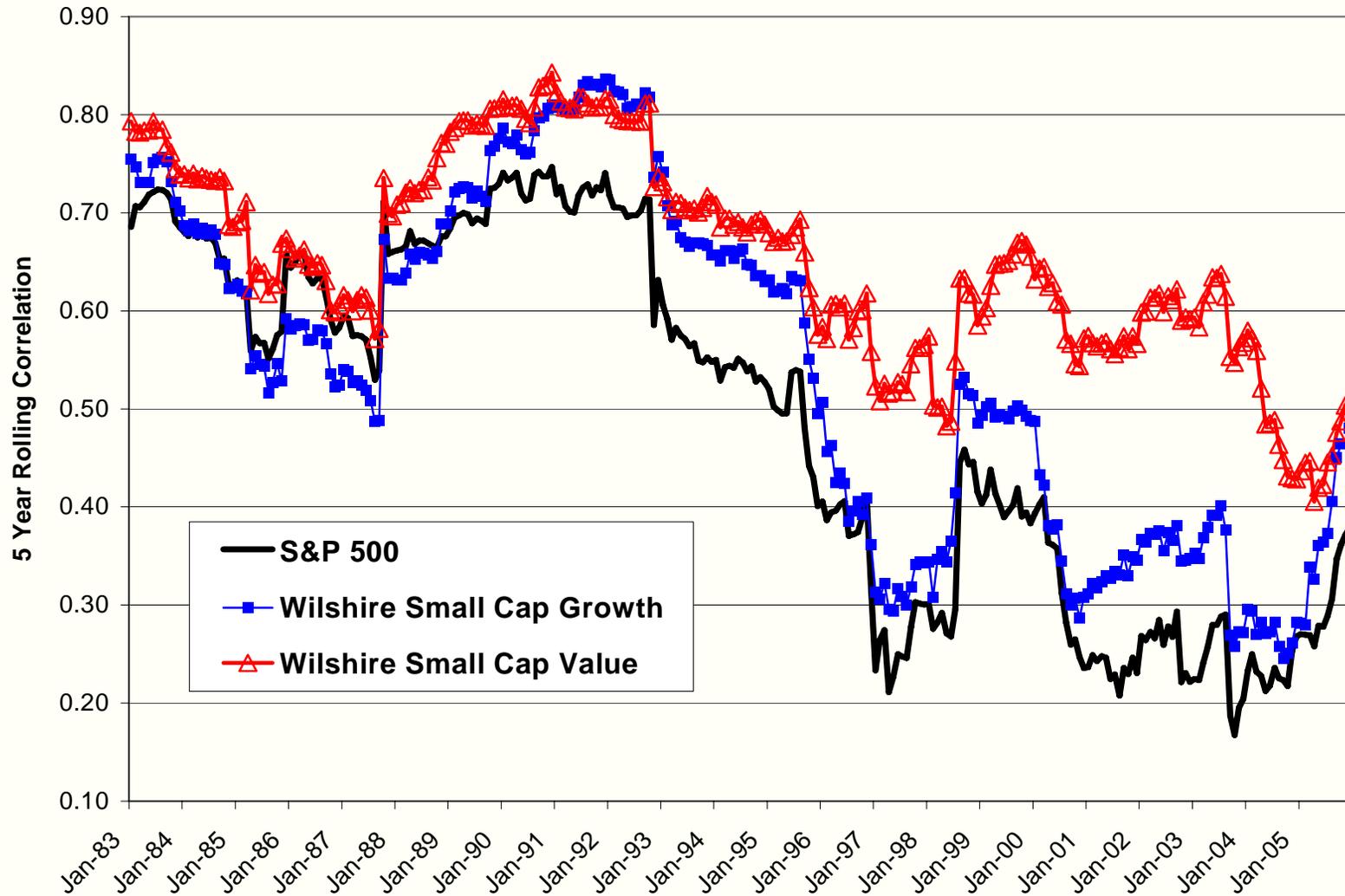
**→ Large investors or those with specialized expertise can benefit from direct private investment (albeit also with some REIT investment for tactical or strategic portfolio management).**

## 23.5 Some REIT investor considerations...

### 2) REIT behavior in the stock market...

- On average REITs tend to be high-yield, low-beta stocks ( $\beta \approx 0.5$ , typically a small-to-mid cap value stock);
- REITs tend to exhibit higher beta during market *downswings* than during upswings ( $\beta \approx 0.8$  in down-markets,  $0.3$  in up-markets – typical of value stocks);
- REITs are probably not be useful for *timing* the stock market, but they may be useful as a *tactical* tool for taking advantage of asset market cycles in the private property market (which is more predictable than the stock market).

# Correlation of Equity REIT Returns with Common Stock Returns (60 month moving average)



Source: Author's calculations based on data available from Wilshire Associates and Standard and Poors.