

Special Report

THE CASE FOR REAL ESTATE IN INSTITUTIONAL PORTFOLIOS

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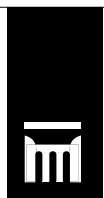
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Abstract

A LONG PAPER NEEDS A SHORT OVERVIEW



Equity real estate, as an asset class, probably has as many skeptics and detractors these days as it does fans. Much of the currently negative opinion is a direct result of the bear market of the 1990s, and the style of investing that was employed going into this period.

This paper seeks to offer a relatively complete examination of all the issues that pertain to the decision to include, or exclude, real estate as a component of institutional portfolios. This work is the culmination of an in-depth review of the historic and current studies, as evidenced by the six pages of references at the end of this paper. In presenting all the facts and pertinent studies we could uncover, we also offer opinions about how they should be viewed. In all of this, you will find that we work to avoid 'boosterism' of real estate, preferring instead to draw the more conservative conclusion from among the possible. In doing so, we believe we can draw a more balanced picture as to why real estate belongs in the world of fiduciary investing.

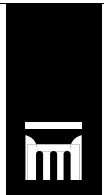
Some of the key avenues for exploration in this paper involve the following:

- Does the institutional performance data since 1978 present a complete picture of the behavior of real estate, or is there a longer view that can put a whole new perspective on the subject?
- Does the NCREIF Index truly represent what the real estate universe has been doing, or could do (even for the data since 1978)?
- What do we really know about the issue of appraisal-based returns and the development of a true measure of risk or volatility for real estate?
- How do the concepts of 'downside risk,' 'inflation risk' and 'liquidity risk' really apply to real estate investments?
- How important is real estate in the universe of investable assets for institutional investors?
- What kinds of opportunities remain for new investments in real estate? Aren't all the bargains gone?
- Finally, how can institutional investors obtain good returns from real estate while controlling the known risks? Are 'opportunistic funds' or public REITs the only answers?

We invite you not to be intimidated by the size of this paper. Perhaps you'll want to start with the conclusions in Chapter 5. Then, feel free to plunge into whatever topics interest you most. You can always keep this work on your bookshelf as a reference point for embarking on other avenues of inquiry into this topic: Why should fiduciary investors reconsider real estate, given the poor experience of most of the players in the late '80s and early '90s?

A large, light gray background graphic of a classical building facade with three columns and a pediment, centered on the page.

CHAPTER 1: REAL ESTATE RETURNS



Starting Off on the Wrong Foot with Institutional Investors

Pension funds considering investing in real estate in the 1980s might have read a report such as JMB's "The Case for Equity Real Estate in the Institutional Portfolio" (1987) and found that institutional returns for 16 years had been 11.1 percent for real estate vs. 10.9 percent for the S&P 500, with the volatility of returns for real estate about one-seventh of that for stocks. It seemed a prudent diversification move indeed.

Today, professional investors in real estate circles (per the Coldwell Banker National Investor Survey, 1st Quarter 1996) are expecting 12.0 percent internal rates of return on Class "A" properties purchased today. (Only 4 percent of survey respondents were pension funds; the balance represented a broad range of investors, advisers, developers, REITs and insurance companies.) Yet, current interest by pension funds in real estate remains lukewarm at best. The June 3, 1996 issue of *Real Estate Finance and Investment* listed only 26 reported searches underway for real estate advisers. Bailard, Biehl & Kaiser's own informal but comprehensive survey of institutional consultants indicates little active interest in new real estate commitments except for securitized equity (REITs) or aggressive opportunistic funds. What happened?

The original expectations of those new institutional investors in real estate were disappointed. The following table illustrates the basic relative view that most pension funds have today of real estate. The data encompasses the entire period of reported performance for the modern version of the old FRC (Frank Russell Company), now NCREIF (National Council of Real Estate Investment Fiduciaries) Property Index.

1978–1996 Compound Annual Return		
Asset Class	As Measured by	Annual Return
Real Estate	NCREIF Property Index (NPI)	8.7%
U.S. Stocks	S&P 500 Index	15.8%
U.S. Bonds	Lehman Brothers Long-Term Bond Index	10.2%

Looking solely at these figures, it is not surprising that many institutions are reaffirming the basic 60 percent/40 percent stock/bond strategy norms. Even bonds outperformed real estate during this time period.

For most pension fund investors, the story is even worse. The bulk of their experience covers the 11-year period since 1985. Of the \$98 billion 1992 value in pension fund equity real estate holdings, nearly 60 percent was invested after the real estate boom was over. The last double-digit return year for NCREIF in that cycle was 1985. Pension fund holdings at 12/31/85 were only \$40 billion. The late 1980s flood of new pension fund money was soon subject to the worst real estate market since the Great Depression. In the negative return years of 1991-93 cumulative returns compounded at -2.9 percent per year. Had the money stayed with the domestic stock market, the institutional favorite for those three years, it would have enjoyed the unusually strong market of +15.6 percent on the S&P 500. In fact, for the decade in which pension funds had the majority of their real estate money invested, the comparative results totally corroborate keeping the 60/40 stock bond mix that has become a popular norm for non-globally oriented investors.

Compound Annual Returns				
As Measured by	'86-90	'91-93	'94-96	'86-96
NCREIF Property Index (NPI)	7.2%	-2.9%	8.0%	3.8%
S&P 500 Index	13.2%	15.6%	19.7%	15.6%
Lehman Brothers Long-Term Bond Index	10.8%	14.6%	6.2%	10.6%

To add further to the misery of plan sponsors, most of the real estate money was locked up in illiquid investments, over which the funds had no control. They simply had to endure. As real estate values declined and stocks rose, by year-end 1994, real estate equity was back down to only 2.8 percent of total pension fund assets.

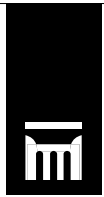


Exhibit 1

**U.S. Pension Fund Real Estate History
Equity Real Estate Investments**

	Amount (\$ Billions)	Percent of Total Holdings
1985	\$40.3	3.2%
1986	50.5	3.1
1987	62.1	3.3
1988	65.1	3.3
1989	77.0	3.5
1990	93.7	3.7
1991	95.3	3.6
1992	97.9	3.2
1993	96.5	3.0
1994	91.5	2.8
1995	94.8	2.9
1996	106.5	2.7

*Source: Money Market Directories, 1986-1997 editions.
Annual survey data collected as of June 30 each year.*

**Toward A More Comprehensive
View of Real Estate Returns: A
Longer Cycle View**

This section will explore three views not commonly held or even acknowledged by institutional real estate investors.

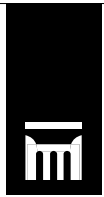
- Consideration of the long-term real estate cycle (50–60 years) puts the recent short cycle (7–8 years) in proper perspective.
- The recent underperformance of real estate is the result of a capital markets driven boom–bust period that is unlikely to recur any time soon.
- Over the long term, real estate equity offers superior returns, similar to those available in other equity markets.

Nearly all studies found in current literature assume that the available data from NCREIF are a fair representation of real estate returns, that they encompass a full real estate cycle. They certainly are the only institutional quality data available. Yet, in our view, they only encompass the top portion of a very long cycle and therefore offer only a very limited view of real estate performance.

Most studies involving real estate cycles define cycles in terms of vacancy fluctuations above and below a long-term “equilibrium” line, and analyze the forces that cause new construction, the absorption of space, etc. Mueller and Laposa (1995) summarize some of the relevant literature and then analyze 31 metropolitan office markets that have data running from 1967 to 1993, concluding that there are four groups of cities with varying cycle length and amplitude, but with the most common cycle length running 7.25 to eight years. Most cycle studies focus on cycles of this length, primarily because of data availability and because the ability to forecast accurately such cycles can lead to optimum property purchase and sale timing. Indeed, we view the study of these shorter term cycles as highly useful in the management of real estate portfolios — in the timing of purchases and sales — but of very limited use in deciding how much to allocate to the real estate asset class. We need to examine longer-term returns to decide on the relative worth of real estate in institutional portfolios.

A few studies encompass a broader view of cycles, with Pyhrr and Roulac (1996) arguing that some 15 different kinds of cycles (inflation, construction, business, social change, technology, etc.) need to be considered in making truly intelligent market timing forecasts. (Interestingly, they conclude that most investment managers will not try to act upon forecasts, but instead, for reasons of job security, will “gallop off with the herd and implement the conventional bandwagon wisdom, which will continue to be based on ‘old news’ — historical data, newspaper headlines, and the latest cocktail party conversation.”) In their collection of “macro real estate cycles,” they include the Wenzlick 18^{1/3}-year cycle (Rabinowitz, 1980) and several longer period cycles (30-year, 50–60 year, and several-100 year) described by Downs (1993). These longer cycles, we believe, better explain the behavior of the real estate markets since 1980 than any of the shorter-term views.

The 18-year cycle first started to appear in the work of Hoyt (1933), in which he detailed 100 years of land values, rents and various kinds of real estate activity in Chicago. Wenzlick’s name became attached to the cycle because he regularly referred to it in his *Real Estate Analyst* periodical in the 1950s and ’60s. However, it failed to reappear in any convincing form for some time after the 1934 trough.



Hoyt (1960) and Rabinowitz (1980) developed arguments on why the old periodicity was no longer occurring.

Not noted by most observers, however, was that every third cycle peak contained a major boom–bust cycle: the early 1800s; the 1870s; the 1920s; and, the late 1980s! If this is so, perhaps the 18-year cycle still persists, but the one we would have expected in the 1950s was postponed and distorted by the prolonged period of underdevelopment in the 1930s and World War II. The “catching up” period masked the normal cyclicity. Perhaps the wash-out of mortgage REITs and the S&Ls in the 1973–74 period indicated the cycle was back on track, and foreshadowed the speculative boom of the 1980s and the washout of the early 1990s. (Appendix A offers further information on the 18-year cycle as well as the long wave 50–60 year cycle.)

In any case, perhaps what institutional investors experienced in the past decade was an anomaly, not likely to be experienced again for another generation. The boom–bust of 1980–94 was merely a repeat of the same boom/bust that occurred from 1920–34. The inflationary years of the teens and the '70s led to dramatic rises in net operating income in the '20s and '80s that then led to disastrous levels of overbuilding. Let us look at some evidence.

What evidence can we find that other decades were much more rewarding for real estate investors? Investment property does not enjoy as comprehensive a database as stocks or bonds, but an extensive searching of the literature has turned up some useful studies to fill in the picture. Several of the studies chosen for this paper were academically rigorous: Wendt (1953); Grebler (1955); and Case (1960). However, they each dealt with returns in one metro market: San Francisco, New York and Los Angeles, respectively. Others were not as in-depth, but still reasonable and thoughtful, and more broadly based geographically: Kelleher (1976) and Miles and McCue (1984).

These studies, plus data from PRISA (the Prudential Realty Institutional Separate Account), the First National Bank of Chicago real estate fund, and the early data compiled by the Frank Russell Company for commingled real estate equity funds, all provide pieces that combine to give an impression of returns from earlier periods.

The data in Exhibit 2 has been arranged around the major stages of the 50-60 year long-term real estate cycle that we mentioned earlier. Notes about the various studies' methodologies and our compilation or recalculation of returns are contained in numbered footnotes. The annual data behind these compound period returns in Exhibit 2 are found in Appendix B.

Exhibit 2				
Compound Annual Total Returns For Various Property Types, Geographies and Time Periods				
1. Prior Boom–Bust Cycle 1920–1934				
	Period Covered	Annual Return	Stocks	Bonds
A. Grebler ¹				
NY Apts	1923-30	13.4%	11.7%	4.9%
	1923-40	4.4	6.1	5.0
	1923-50	4.9	8.6	4.2
NY Lofts	1923-30	10.9	11.7	4.9
	1923-40	1.0	6.1	5.0
	1923-50	4.7	8.6	4.2
NY Apts	1928-40	(0.4)	1.3	4.5
	1928-50	2.9	6.4	3.7
NY Lofts	1928-40	(2.2)	1.3	4.5
	1928-50	1.6	6.4	3.7
B. Wendt ²				
SF CBD				
Office/Retail	1919-27	10.6	12.7	5.0
	1928-34	(2.3)	(3.5)	4.0
2. Between the Cycle Peaks 1935–1980				
	Period Covered	Annual Return	Stocks	Bonds
A. Wendt ¹				
SF CBD				
Office/Retail	1935-45	4.9%	11.5%	4.5%
	1946-51	9.9	12.9	0.5
B. Case ³				
LA Diversified	1935-39	2.6	10.9	4.8
	1940-44	17.0	7.7	3.0
	1945-49	13.6	10.7	3.5
	1950-53	17.4	17.6	0.2
D. Kelleher ⁴				
Diversified Multi-tenant nationwide	1961-73	13.2	7.4	2.6
D. Hodges ⁵				
Apts and Offices, Washington, D.C.	1966-70	9.0	3.4	0.3

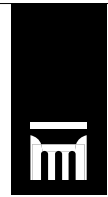


Exhibit 2 (continued)				
	Period Covered	Annual Return	Stocks	Bonds
E. ERISA⁶				
Office and industrial nationwide	1973-82	12.9	6.6	6.3
F. FNBC⁷				
Office and industrial nationwide	1975-82	11.2	14.9	7.3
G. Miles and McCue⁸				
Apartments nationwide	1974-81	15.5	17.9	3.2
Industrial nationwide	1974-81	16.2	17.9	3.2
Office nationwide	1974-81	15.0	17.9	3.2
Retail nationwide	1974-81	11.5	17.9	3.2
3. Recent Boom-Bust Cycle 1978–1993				
NCREIF⁹ Property Index				
	1978-93	8.9	15.1	11.0
Apartments	1985-93	6.5		
Office	1978-93	7.4		
R&D	1978-93	8.7		
Retail	1978-93	9.9		
Warehouse	1978-93	9.0		
3. Recovery to the Next Cycle Peak (around 2040-45?)				
NCREIF Property Index				
	1994-96	8.0	19.7	6.2
Apartments	1994-96	11.6		
Office	1994-96	7.8		
R&D	1994-96	11.3		
Retail	1994-96	4.9		
Warehouse	1994-96	11.3		

¹ Grebler (1955) studied the records of 581 properties in New York City that had at least 20 years of operating records. Apartments are an equal mix of walk-ups and elevator, with rent control being a factor from 1942–50. Lofts are typically 2- to 3-story business structures, with offices or stores downstairs and open office, warehouse or light manufacturing upstairs. Grebler calculated his own internal rates of return, which we were able to confirm in some cases by the data provided in the study. Returns are based upon purchases grouped into five-year periods (1920–24 and 1925–29),

unleveraged, with resales based upon adjusted assessed values (adjusted to market by the ratio of actual price to assessed value) for a sample of 13 apartments and 14 lofts.

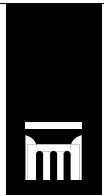
² Wendt (1953), primarily a study of annual operations, provided detailed data for 39 properties in downtown San Francisco, all commercial buildings, primarily office but often with retail or restaurant on the lower floors. From these he constructed a net operating income index for each five-year period. Using this data, plus actual purchase and sales prices for 12 properties in the sample (several transactions on some), we calculated the total returns shown. The other 27 properties were not included because only listing prices, owners' opinions or uncertain appraisals were available as sale proxies.

³ Case (1960), primarily a study of annual operations, reviewed the records of all properties that had at least 10 years of operating data in the city of Los Angeles: 57 apartment buildings, 37 commercial properties and 14 mixed-use properties. We calculated the total returns shown by applying the capitalization rates calculated for each period to determine price changes, and combining this with the net operating income figures to obtain the total returns.

⁴ Kelleher (1976), was an officer of the Dain Corporation in Minneapolis, real estate investment managers and investment consultants. That company collected net operating income data on "many seasoned rental properties across the nation and is constantly updated. The data are used to construct a Net Operating Income Index for Multiple-Tenant Real Estate." Capitalizing this data with the "prevalent rate of capitalization ... used by large insurance companies" produced an annual return index for seasoned investment properties. Over the period of the study, cap rates rose from 8.9 percent to 9.5 percent, so all of the price appreciation had to come from the rise in the Net Operating Income Index from 77.6 to 140.1.

⁵ Hodges (1971), surveyed 17 apartment and commercial office property sales in the Washington, D.C. area between July 1966 and June 1970, and found total returns concentrated around the 9 percent level.

⁶ Prudential Realty's commingled real estate fund, the industry leader (in size) for institutional investment in the 1970s. Founded in 1970, it grew to more than \$5 billion in total assets by 1984, and was heavily oriented to office and industrial property in the 1970s. Returns are



calculated in a similar fashion to NCREIF, based heavily on annual appraisal values.

- ⁷ First National Bank of Chicago's commingled, unleveraged, real estate fund, smaller than PRISA, with returns reweighted by Ibbotson (1984) to reduce geographic imbalance: equal-weight, regional portfolios were calculated for north, south, east and west regions, then combined by weighting to reflect relative census populations in each region.
- ⁸ Miles and McCue (1984) studied the component returns of a large commingled fund (either Prudential's or Equitable's, by virtue of its size), and developed these figures from a fund that had 113 properties in the beginning and more than 300 at the end of the study, diversified into 51 percent office, 28 percent industrial, 17 percent retail, 3 percent apartment and 2 percent motel.
- ⁹ The National Commingled Real Estate Investment Fiduciaries (NCREIF) Property Index, formerly called Frank Russell Company Index (FRC), tracks the annual returns of thousands of unleveraged properties (as well as leveraged properties where the returns have been de-leveraged) in institutional portfolios, using annual appraised valuations. As of mid-1988, this index was 58 percent in offices or R&D properties, 22 percent in retail properties, 15 percent warehouses, 4 percent apartments and 2 percent hotels.

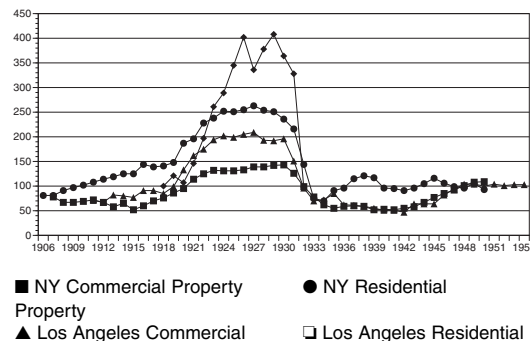
In the comparative data of Exhibit 2, the superior performing asset for each period has its return highlighted in boldface type. (Where the returns are within a factor of 0.9–1.1 times each other, both are highlighted). Not surprisingly (to seasoned real estate professionals), common stocks and real estate have a similarly frequent distribution of superiority. The bold-face type is distributed about equally between the real estate returns and stock returns. Bonds are worse. Only during the boom-bust cycle of the late-'20s or late-'80s do bonds emerge as a superior asset class.

What other information can we glean about the earlier boom-bust period? In addition to the return data available from historic studies, three studies contained details of net operating income trends: Grebler (1955) for New York City commercial property and apartments; Hoyt (1933) for Chicago Central Business District (CBD) office buildings; and

Case (1960) for Los Angeles commercial property and apartments. These data, converted to index values and plotted in Exhibit 3, offer a clear picture of the economic motivation for the capital markets to create a building boom in the 1920s. In Exhibit 3A we show a similar Net Operating Income (NOI) bulge in the 1980s, using the income components of the NPI. How big was the boom? Arbour (1993) calculated the real value of commercial construction in this century, and divided it by total finance, insurance and real estate (FIRE) employment (the traditional census employment data used to evaluate office markets). His findings, plotted in Exhibit 4, were that both the 1920s and the 1980s had several years of new development in excess of \$2,000 per employee, levels not reached in any other years of this century! And both periods resulted in occupancy problems (with the 1930s made worse by the Fed's contraction of the money supply and the worsening economic depression). The boom-bust of yesterday was not that different from our modern experience. (Appendix A offers additional evidence of earlier boom-busts in American history.)

Exhibit 3

Net Operating Income (NOI) Index The 1920s Operating Income Boom



¹⁰ The nearly perfect timing coincidence between the three cities in the 1920s may not be representative of normal experience. In the 1980–1993 boom-bust, the crash rolled from the Oil Belt (including Denver) in 1984–87, to Arizona in 1988–89, to New England, New York and Mid-Atlantic in 1989–92, finally ending in California in 1990–93.

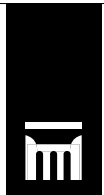
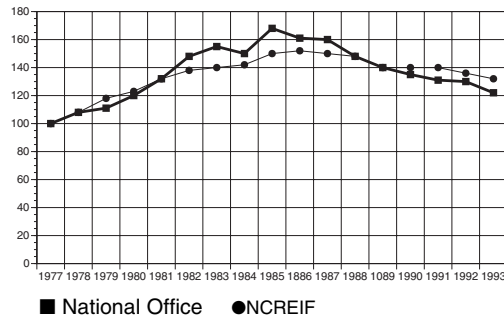


Exhibit 3A

The 1980s Operating Income Boom

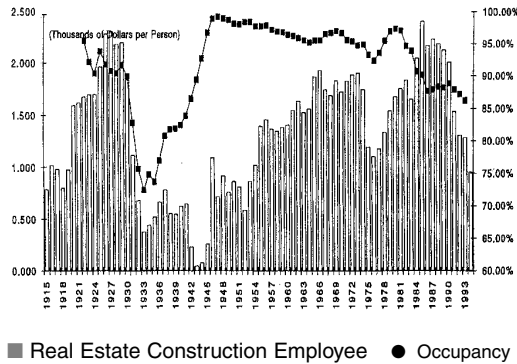


1977 to 1985 were annualized, the resulting 14.3 percent figure would “hide” the peak return years of 18 percent and 20 percent. It is still not a cleanly continuous picture, but it does rough justice to portraying the behavior of real estate returns in this century. It shows:

- Good returns in the 1920s (possibly with some very high return years not discernible from the available data)
- Weak to negative returns from the late '20s into the 1930s
- Moderate to high returns from the 1930s into the 1970s
- High double-digit returns in the late 1970s and into the 1980s
- Weak to negative returns in the early 1990s
- Moderate returns in the mid-1990s

Exhibit 4

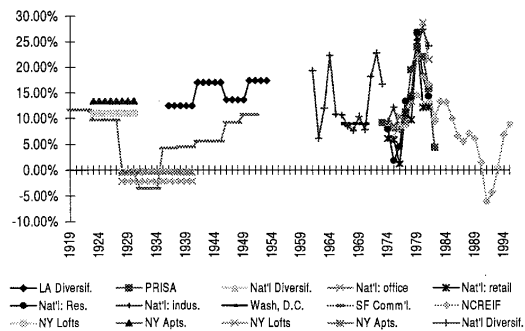
Commercial Construction Per Trade/FIRE Employment vs. Office Occupancy (In constant dollars)



We should note that it is difficult to be academically rigorous in drawing any conclusions from the return data in Exhibit 2. Demanding statisticians will point out that we are comparing small sample property studies with broad market indices for stocks and bonds. Yet, when all the studies are plotted on one chart (Exhibit 5), one can see the pattern of a long period of consistently good returns between the 1930s and 1990s trough periods, with a brief period of exceptional returns prior to each trough. In the 1920s, the effect of having only compound annualized data for five- to eight-year periods probably smooths over and hides the peak return years that anecdotal evidence and the NOI chart in Exhibit 3 indicates were likely to have occurred around 1927. By way of comparison, if the FRC/NPI returns for

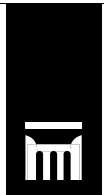
Exhibit 5

Real Estate Total Return 1919–1995



A Brief Look at REIT Returns

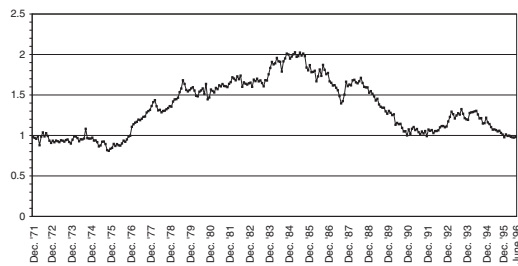
Following their experience with the illiquid nature of the commingled real estate funds offered in the 1980s, many institutional investors have turned to real estate investment trusts (REITs) as a vehicle for real estate investing. Many studies indicate that REITs are strongly influenced by the general trends in the stock market. Gyourko and Keim (1993) put the correlation coefficient with the S&P 500 at 0.76, and with a small stock index at 0.90. Yet, a number of studies show that the underlying longer term real estate trends are indeed reflected in REIT returns. Exhibit 6 shows the ratio of cumulative compound



returns for equity REITs (NAREITs) to S&P 500 Index returns, and the boom–bust period from 1975 through 1992 shows up clearly in the periods of overperformance and then underperformance for REITs. Interestingly, the turning points run one to three years ahead of those for the appraisal-based NCREIF returns, confirming the look-ahead nature of the securities markets.

Exhibit 6

**Ratio of Cumulative Equity REIT Returns vs. S&P 500
December 1971–June 1996**



When looking at REITs over the longer term, such real estate returns do indeed look competitive. A thorough study of equity REIT returns by Gyourko and Siegel (1994) found the results in Exhibit 7. (Equity REIT returns are a value weighting composite of all qualified REITs and lists in various issues of the *S&P Handbook* and *NAREIT Fact Book*.) They broke the 31-year study into two subperiods, partly to isolate the REIT debacle of 1973-74 (heavily influenced by risky mortgage REIT lending to developers), and partly due to the fact that there were very few equity REITs in the universe prior to 1975.

Exhibit 7			
Annualized (Compound) Total Returns			
	8/62-8/93	8/62-12/74	1/75-8/93
Equity REITs	10.2%	-0.2%	17.8%
S&P 500 Index	11.0	4.8	15.4
Small Stocks	15.1	6.4	21.3
Long-term Bonds	7.4	2.5	10.7

Given these kinds of returns, real estate again would appear to have an important role to play in portfolios seeking high returns, more so than bonds. (The issue of publicly traded REITs versus other real estate investment

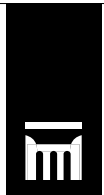
structures will be addressed in other sections of this paper, including the “Improving the Risk Estimate, Method 1” and “Liquidity Risk and Investor Control” sections of Chapter 2.)

Prospective Returns from Here

As mentioned earlier, the Coldwell Banker National Investor Survey of First Quarter 1996 shows real estate professionals using high return hurdles to justify new property investments. Seventy-five percent of the survey respondent universe is comprised of advisors, insurance companies, REITs, and developers, and they are applying an average 12 percent discount rate (IRR) to Class “A” buildings, and 13.1 percent and 14.6 percent discounts to Class “B” and “C,” with a forecast inflation rate of 4 percent. In the United Kingdom, which has experienced a similar overbuilding boom–bust, French (1996) found five-year total return expectations of 8 percent income and 3 percent capital appreciation for a total return of 11 percent. As discussed later in Chapter 4 these expected returns are not unreasonable, and are likely to be quite competitive with common stocks once again.

Historic Returns Could Have Been Better: The Role of Property Type

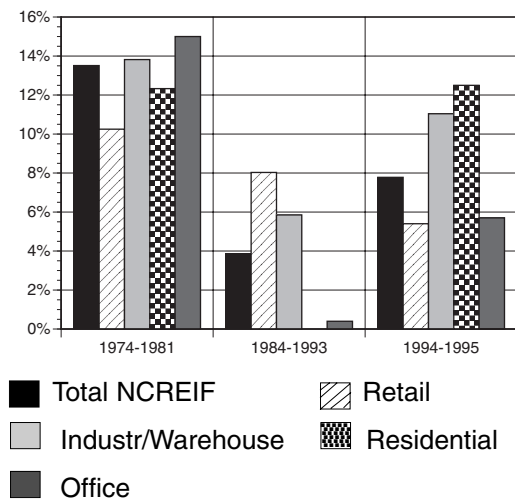
A simple review of the property level performance of the NCREIF Index shown in Exhibit 8 (as well as earlier FRC and Miles/McCue data) indicates that the selection of property type can result in widely varying performance. From 1974–’81, prior to the boom, retail properties (shopping centers) significantly underperformed the other three property types. Likely as a result, capital flowed to the other property types during the boom period and led to the poor returns in the bust that followed, particularly in offices. Retail properties became the significantly superior performer from 1984–’93. Of course, such steady performance helped to encourage the development boom fostered by new ideas in retail properties, spreading beyond the mall and strip center focus of earlier periods to big box retailers, power centers, and outlet malls. Result? During the 1994–95 recovery period and to date, retail is the poorest performing asset class due to overdevelopment of retail space. Exhibit 8 offers bar graph comparisons of the returns to each property type in the periods before, during and after the recent cycle peak. Periods of overdevelopment and



underdevelopment in the construction cycle have been the driver for the variability in return. In fact, Muldavin, Paratte, and Roulac (1996) argue that capital market flows have a dominant effect on all property markets, and that asset selection only should be made with a high level of awareness of what is happening in the capital markets.

Exhibit 8

**Annualized Returns:
NCREIF vs. Property Sectors
(1982–1988 Residential Data Not Available)**



(Source data in Appendix B)

A more sophisticated argument for considering the strategic property mix is found in work by Gold (1996) and Mueller and Laposa (1995). Gold points out that the institutional asset allocations implied by the NCREIF Index or the Institutional Property Consultants (IPC) database indicate a currently heavy allocation to office buildings and shopping centers, yet the best performing property type over the past decade has been apartment buildings.

Mueller and Laposa's work involved calculating efficient frontiers for the property mix over various time periods, using the NCREIF return data. In the maximum-return portfolios, offices dominate the 1978–1984 period, retail properties dominate the 1985–1990 period, and apartments are preferred in the 1990–1994 period. Office buildings do not even show up in any efficient portfolio for any sub-period after 1985, yet they, along with shopping centers, continued to dominate the property mix

throughout the entire period. Only in recent years have institutions begun to seriously add apartment properties to their portfolios.

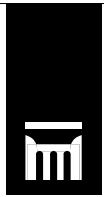
Exhibit 9 shows how the institutions reporting to NCREIF continued to overweight office properties, even though they were a very poor performer after 1985, whereas apartment buildings, the strong performer since 1990, have continued to be underweighted in the estimated property universe. (See the “Market Basket Benchmark” discussion in Chapter 3 of this report, centered on Exhibit 35.) What this means is that institutional portfolio managers have not been focusing on the best asset mix, but merely have been doing what everyone else has been doing, and are achieving poorer results than could have been achieved in real estate! Instead, the active management of property type exposure should serve as a major factor to increase returns.

	NCREIF 1996	Estimated Investable Universe*
Office	32%	29.1%
Retail	35%	32.2%
Warehouse	12%	6.4%
Apartment	15%	32.3%
Other*	6%	N.A.
Total	100%	100.0%

**For those interested in risk-adjusted returns and correlation coefficients for these economic location groups, see Ziering and Stoesser, (1997).*

Historic Returns Could Have Been Better: The Role of Geography

Real estate investors always have intuitively believed there was merit in considering a diversification strategy based on geographic location. As a result, the NCREIF return data for years have been reported for four broad regions of the country. The study by Mueller and Ziering (1992) and expanded in Mueller (1993), however, indicated that looking at each metro area in terms of its economic drivers (employment trends by SIC code) and using these to create eight different groupings, could add about 0.5 percent in annual return to the efficient frontiers of portfolios, versus those diversified only by NCREIF's four

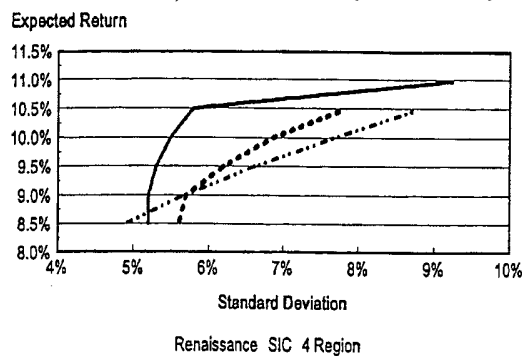


regions. (Mueller 1993 used data for 1973-1990 from a large institutional portfolio and found the efficient frontier was 3 percent to 4 percent higher in annual returns than was possible with the four-region approach.)

Even more interesting work by Ziering and Hess (1995) included 22 additional variables into the work, such as number of college students, Fortune 500 representation and rate of home ownership. Their resulting metro area groupings carry names like "Traditional," "Older," "Energy," "New Age," "Regional Center," etc. Impressively, these more efficient groupings of metropolitan areas raised the returns on efficiently diversified portfolios about one full percentage point over the NCREIF four-region portfolios for the 1972-94 period, and spurred an even more impressive one to two point improvement in the risky boom-bust period of 1986-94 (see Exhibit 10). The diversification and returns that investors thought they were achieving weren't nearly as good as they could have been.

Exhibit 10

Efficient Frontiers: NCREIF Four Region, Mueller SIC, Renaissance (1972-1994)



Historic Returns Could Have Been Better: The Role of Manager Expertise

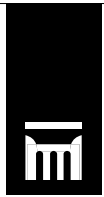
Today, as managers tout their rankings against benchmark universes, there are wide variations indeed. Much of the variation can be traced to when the portfolio was purchased, particularly whether it was near the boom's peak or in the recent trough. Thorough analysis can discriminate between portfolios of different vintage.

However, even in the relatively more stable times of 1979, Miles and Esty (1982) found that total returns from commingled funds for that year ranged from 10.3 percent to 24.1 percent for insurance company funds and from 10.0 percent to 20.3 percent for bank managed funds. (Independent real estate advisers for pension funds did not exist back then.) While the study goes on to conclude that much of the variation in return can be attributed to size of fund, age of fund, geographic mix and size of properties, it is clear that manager/fund selection is an important determinant of the returns experienced by a particular pension fund. A recent study by Webb and Myer (1996) found that while the property mix accounted for at least 50 percent of the variation in return for more than half of the commingled funds, the balance of the return variation must be explained by other factors, such as location, luck, or management strategy and expertise.

Other studies indicate that individual property selection is the key variable, and that those responsible for the management of the real estate portfolio should look past the management and see through to the underlying properties. Corgel and Oliphant (1991) found that while some commingled real estate funds consistently outperformed others over different time periods, the key to forming good core portfolios was to look to such things as giving favorable leases to creditworthy tenants, etc. Young and Grieg (1993) analyzed the NCREIF property universe and found such wide variability of returns from property to property that they concluded that specific property selection was more important than focusing on property type diversification or geographic diversification. However, this work only considered the annual cross-section analysis of returns. Later work by Young and Graff (1996) did find some serial persistence in upper-quartile or lower-quartile metro area/property type returns — that is, high performers tended to remain as high performers and weak properties tended to stay weak, when compared from one year to the next. They found no pattern, however, in individual property selection/performance for the middle 50 percent.

Real Estate Return Data: A Few Caveats

Modern Portfolio Theory (MPT) studies require a substantial number of data points over fairly long time periods, and assume a normal bell



curve statistical distribution. One can come close to these conditions (although there are always exceptions) in the publicly traded securities markets. However, many real estate studies use small data sets with limited time frames, often because it is the only data that has any relevance to the issue being studied. Even with the NCREIF Property Index, which has some 2,500 properties now, and has a 76-quarter history, we have problems. Only properties held for the full quarter are included in the data; sold properties are not included and acquired properties are not added in until the next quarter. Series such as the S&P 500 are continuously adjusted. Further, NCREIF does not presume reinvestment of income, which would be difficult in “lumpy” real estate portfolios, whereas stock indices do presume reinvestment of dividends as received.

The biggest problems, however, lie in the fact that the variability of returns in real estate portfolios is much more influenced by each property’s unique performance than stock portfolios are by each stock. The systematic risk (general market influences) is less important in real estate than in stocks. Put another way, correlation coefficients for properties all tend to be lower than they do for stocks. In addition, studies by Young and Grieg (1993), Young and Graff (1995) and Graff and Young (1996) all point out some serious difficulties in performing portfolio analyses with 95 percent confidence intervals. Real estate data are not normally distributed: the curve is broader and lower than a normal curve, and tends to be skewed either negatively or positively depending on the time period chosen. Thus, Graff and Young conclude that while “the addition of properties of any type to portfolios with small numbers of individual assets is an effective diversification strategy,” they are “skeptical of the additional value of MPT mean-variance diversification strategies.” Finally, efficient portfolios presume frequent and low-cost transactions, something that is difficult for almost any size institutional portfolio to achieve.

Nonetheless, mathematical precision and statistical proofs to the 95 percent confidence level are not required to draw common sense conclusions and make sound improvements portfolio strategy. When the human mind can understand the nature of the statistics available and how they are derived, the mind also can draw usable inferences and conclusions from

even somewhat “fuzzy” statistics. In this context, we do find enlightenment in “efficient frontier” studies — because they reinforce our real world experience — not because they offer statistical proof.

New Methodologies May Expand the Boundaries of the Possible

Three new concepts for institutional real estate management now are being tested, and they may serve to improve future real estate returns.

One, the introduction of incentive fee structures is an attempt to motivate real estate advisers to more aggressively improve property performance. Private real estate investors historically have been viewed as behaving in a more entrepreneurial fashion, while the big real estate advisers have been characterized more as “property sitters.” The theory is that if advisers only profit from “percentage-of-the-upside” performance fees, they will be more motivated to make properties perform to their full potential, to sell properties sooner to capture the best portion of the IRR and to prune out properties that are not performing. It sounds good in theory, and it may well prove out, but any incentive compensation system poses the risk that the players will only focus on behaviors that accrue to their own profits, and stop doing the things that might also be important for long-term balance in achieving the overall objective. For example, it is possible that, in seeking to maximize returns, the property-type and metro-area strategy are so focused that the investor is exposed to more risk than is desired. How does one put a balanced incentive system in place that also rewards risk control?

A second concept that is gaining new attention in the marketplace is that of portfolio management. Instead of just a buy-and-hold strategy, perhaps real value can be added by strategies for redeveloping and repositioning properties, or by playing the seven- to eight-year market cycles for property types and metro areas to avoid periods of market weakness. A sound selling strategy is just as important for real estate portfolio management as it is for liquid security portfolio management. (As an indication of the newness of this concept, the *Journal of Real Estate Portfolio Management* only was started by the American Real Estate Society in 1995.)



A third idea that may improve real estate returns is the newly developing expertise of the players responsible for strategy development and the selection and supervision of real estate advisors. As institutions have tried to deal with the problems in their real estate portfolios, a new and varied industry of real estate consultants has developed. A few have even moved to a “manager of managers” concept or other forms of “fiduciary oversight”. In such cases, advisors are selected for their acquisition, operating, and disposition skills, while the responsibility for strategy development (and even portfolio management) remains in other hands. There is some thought that such close oversight (which retains the right to replace advisers) also provides additional incentive for advisers to perform to their full potential.

Conclusion to Chapter 1

Due to the recent cycle, real estate has an undeserved current reputation for producing poor returns for institutions. Recent experience is not representative of the longer term behavior of this asset class. Institutions that focus only on the experience of the 1980s and 1990s will falsely hinder their participation in the strong return fundamentals of this opportunity.

With the exception of the risky boom–bust periods that have occurred once in a generation (and that we have just lived through), real estate returns are competitive with common stocks, and superior to those of bonds. We are still in the early phase of recovery from the bust of the early 1990s. Currently, professional real estate investors are expecting 11 percent to 12 percent returns on new investments, suggesting that real estate will once again be competitive with stock market returns in the years ahead. In summary, cycle analysis indicates that:

- A longer-term cycle of 50–60 years is evident and we appear to be in the early years of the next long cycle.
- Each long cycle may be composed of three 18-year cycles which, while not as volatile on the downside, may offer opportunities to enhance returns.
- Property and local metro area cycles of 5–7 years offer a considerable opportunity to improve returns over the typical institutional buy-and-hold approach.

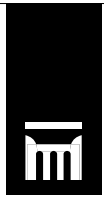
Further, the typical performance of commingled real estate funds in the past 20 years as represented by the NCREIF Index is not representative of what institutions could have achieved had they not just followed the crowd, but instead utilized some combination of the following:

- A more soundly conceived property diversification
- Better geographic and/or economic diversification
- Improved cycle timing through awareness of the property market and capital markets movements
- Careful manager selection
- Careful property selection

Finally, the new attention being given to adviser selection and supervision, to incentive fee structures and to more active portfolio management strategies all could serve to provide investment performance in the future that is better than what has been available in the past.

A large, light gray decorative graphic of a classical building facade, featuring a pediment and four columns. The text is overlaid on this graphic.

CHAPTER 2: REAL ESTATE RISKS



This chapter will cover a broad range of real estate investment risks.

- Modern portfolio theory considers the volatility of returns and the correlation between asset classes. How can appraisal-based returns fit into this framework? The possibilities include estimating from the public securities markets and statistically un-smoothing the appraisal-based returns. In addition, we will examine how such volatility varies over time.
- Downside risk analysis considers only the risk of losing money.
- Inflation risk has a complex relationship with real estate returns. Real estate is a hedge against inflation, except when high inflation temporarily induces capital markets disruption in the normal relationship.
- Liquidity risk may not be as difficult an issue as is commonly believed. There are ways of dealing with it.
- Finally, the inclusion of real estate in the portfolio simply may be a way to help defend against those large, but infrequent, “paradigm shift” kinds of risks that are nearly impossible to anticipate.

How “Real” Are Appraisal-Based Returns?

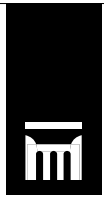
Since modern real estate return data first became available in the 1980s, researchers have attempted to answer the question of real estate’s place in investment portfolios. The classic Modern Portfolio Theory (MPT) method uses historic (or forecast) returns, standard deviation or volatility of returns, and correlation of returns with other asset classes to determine the efficient frontier and the optimal portfolio mixes that lie along that frontier.

The problem that such MPT studies continue to face, however, lies in the differing nature of the returns. Stocks and bonds are priced daily via actual transactions. If one lot of Intel trades at \$75 per share, it is reasonable to assume that all lots of Intel held in portfolios could be sold at nearly the same price (assuming there were sufficient buyers to provide the needed liquidity). Real estate trades far less frequently. From 1984 to 1989, only 5 percent to 7 percent of the properties in the NCREIF Index were sold each year, and this dropped to 2

percent to 3 percent over 1990–92 (or about 40–50 properties out of the 1,861 in the index at year end 1992) (Webb 1994).

Further, if one office building in Chicago trades at \$210 per square foot, that does not mean that all Chicago buildings have the same value, let alone buildings in different geographies. Differences in quality, location, floor plate, lease terms, operating costs, age, management capability, etc. all result in different levels of net income from one building to the next. Thus, it becomes more logical to value properties by capitalizing their net income stream. If our Chicago office building has a \$1 million net income and it sells for \$10 million, the earnings are capitalized at 10 percent by mutual agreement of buyer and seller. The building is sold at a 10 percent “cap rate.” Even then, it is difficult to say that all such buildings should trade at a 10 percent cap rate, because no two buildings are exactly alike in the reliability of the income stream (tenant profile, average lease length, location relative to transportation, expenses to run and maintain the building), nor are any two transactions necessarily driven by the same motivations or outlook of the buying and selling parties. (Similarly, just because Intel sells for 16 times earnings, not all semiconductor manufacturers will sell for the same multiple.)

Nonetheless, investors generally have come to accept the use of the professional appraisal process, particularly if there are enough properties in the portfolio, and enough different appraisers so that any high or low misjudgments can average out to near zero on balance. Empirical evidence for the variability of any one transaction price versus its most recent appraisal is that there is a standard deviation of difference of slightly less than 10 percent, according to Miles, Guilkey, Webb and Hunter (1991). Even here, recent studies have uncovered industry-wide biases that sophisticated observers long suspected were there. Webb (1994) found that the last appraisal prior to a property sale in the NCREIF Index averaged 99.5 percent of the sale price — not too bad when considering that many of those final appraisals benefited from fresh information as the property was being shopped or even during final negotiations. However, he found interesting variations by market trend. During the bull market from 1978 through 1985, appraisals averaged 7.8 percent below actual sales. In the flat market



of 1986–87, appraisals were 2.3 percent above actual sales. And, during the bear market years, appraisals were 3.3 percent above actual sales 1988 through 1990, and 4.9 percent above sales in the trough of 1991–92.

The conclusion is that the information available to appraisers tends to lag reality in the marketplace. Born and Pyhrr (1994) lay the blame on the discounted cash flow models used by appraisers, which extrapolate recent trends into the future, thereby causing appraisals to be slow in detecting the early stages of both downturns and recoveries. In effect, appraisal methodology is more backward-looking than forward-looking. Hendershott and Cane (1995) argue that the process is further biased by the incentive for appraisers and managers to maintain higher older appraisal levels in the early stages of a decline, just in case the decline proves temporary. They also detected a sample bias that contributed to this early delay in declining appraisals: the first properties to trade in a decline are the newer, higher quality ones that require less rehabilitation and therefore command higher prices. As the more distressed properties begin to trade, the rate of price decline is then overstated by the sample bias toward poorer quality properties. (Prime “core” properties tend not to be offered in market panics.)

Real Estate and Modern Portfolio Theory (MPT): The Basics

The basic approach takes the NCREIF Index results as they are and calculates returns and standard deviations of return (risk). From the appraisal-based data in Exhibit 11 alone, real estate appears to be a very low-risk asset class.

Exhibit 11			
Return, Risk, and Correlation Coefficients of Three Asset Classes			
1978 Q1 - 1995 Q1	Real Estate	Appraisal-Based Methodology	
		Stocks	Bonds
Average Annual Return	7.9%	14.9%	9.8%
Std. Deviation of Return	4.0	14.8	8.4
Correlation with:			
Real Estate	1.0	-0.3	-0.4
Stocks		1.0	0.6

(Source: Wurtzebach, Hartzell and Giliberto, 1995)

These results make real estate look very attractive in terms of risk and non-correlation with financial assets. If one believes that real estate returns once again will be above 10 percent, real estate would be a major asset class in all but the riskiest portfolios on the efficient frontier. In fact, prior to the recent real estate crash, such analyses called for minimum 20-percent allocations to real estate.

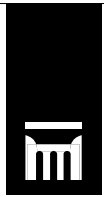
With the kinds of (pre-boom–bust) numbers in Exhibit 12, the more real estate you add to the portfolio, the higher the return and the lower the risk — a powerful argument for overallocating to real estate.

Exhibit 12			
Real Estate Offers Superior Return for Risk (Pre-Boom/Bust) Appraisal-Based Methodology			
1971-1986	Real Estate	Stocks	Bonds
Annual Returns	11.1%	10.9%	9.5%
Std. Dev. Of Ret.	2.4	16.5	8.4
Sharpe Ratio ¹	1.4	0.2	0.2

(Source: JMB, 1987)

Yet, even before the 1990s, institutional investors felt that some adjustment was needed to the risk measures for real estate. Some compensation was needed for the smoothing effect of appraisal-based returns. Firstenberg, Ross and Zisler (1988) found that a standard deviation of 11.3 percent could be calculated for real estate returns, by capitalizing the annual income component of real estate returns and using this number for market value rather than using appraised values. They felt the method may have some validity insofar as a similar procedure for the stock market produced estimates near the true value for stock volatility. Even then, the portfolios on their efficient frontier contained from 49 percent to 100 percent real estate, largely because real estate returns were so attractive for the 1978-85 study period (13.9 percent).

A major reason for the lower volatility of real estate versus stocks lies in the difference in the use of leverage. In the NCREIF Index, all returns are reported on an unlevered basis. That is, all properties are assumed to be purchased for all cash, whether or not a mortgage actually was involved. If one were to lever the NCREIF properties to the same extent as the



average firm in the S&P 500, the standard deviation of return would increase to roughly half that of the S&P 500, according to Gyourko and Linneman (1990). Even so, the high returns prior to 1990 still would result in real estate being the most attractive asset class (i.e., having the highest Sharpe ratio).

Finally, another reason why real estate returns are different from stocks lies in the method of calculating the income component of return for the NCREIF Index. While the income from real estate is itself inherently stable, it is made even more so by including capital improvement expenses in income. Young, Geltner, McIntosh, and Poutasse (1995 and 1996) found that measuring only the cash flow from real estate (net operating income less the amount retained for capital improvements) would make real estate returns more comparable to stock market dividends, which, over time, also are approximately equal to corporate earnings less the amount retained to reinvest in the company. They restated the entire NCREIF data series by subtracting capital expenses from net income and found that the net cash flow returns increased in volatility to 0.64 versus the old net operating income volatility figure of 0.37. Then, instead of subtracting the capital expense figure from the appraised value, the appraised values remained unadjusted. The standard deviation of capital returns remained essentially unchanged. While this approach does improve the comparability of real estate returns (and in fact makes the NCREIF income returns more comparable to the NAREIT dividend yield), it does not really satisfy the question of how volatile is real estate ... really!? There still remains the issue of appraisal smoothing of true market price changes.

How Do Investors Perceive Real Estate Volatility?

Hartzell and Webb (1988) surveyed 240 real estate investors and received 110 responses, 38 percent of whom were consultants or real estate advisers, with the balance spread fairly evenly among insurance companies, academics, and pension funds. About half the respondents completed the survey prior to the October 19, 1987 stock market crash and half after that event. To this point, real estate had not exhibited much weakness in total return, though the respondents foresaw some near-term weakness. They forecast 9.1 percent total

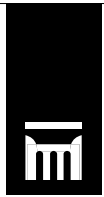
returns for the next three years, while expecting a more attractive 11.3 percent over the longer term (10 years). The stock market crash had some marginal impact on respondents, in that 10-year returns forecast prior to October 19 were 11.6 percent versus 11.0 percent after that date.

With regard to volatility, only 18 percent felt that the standard index, the Frank Russell Company Index, approximated the actual volatility of real estate. Instead, respondents generally believed real estate risk to be between 65 percent of stock risk (pre-October 1987 collapse) and 54 percent of stock risk (post-collapse). With the S&P volatility for the 10 years through first quarter 1987 at 15.1 percent, that meant that real estate investors put real estate volatility at somewhere between 8.1 percent and 9.8 percent, indicating a healthy skepticism for the overly pro-real estate studies of that era. Following the 1990s real estate decline, risk estimates likely be higher.

Real Estate: Part Bond, Part Stock

According to Wurtzebach, Hartzell and Giliberto (1995), it is a common practice among pension consultants to use the midpoint of the volatility between stocks and bonds. Depending on the time period chosen, that would indicate a standard deviation of return around 11 percent to 13 percent. This approach seems intuitively appealing. Although real estate is an equity play, and therefore is vulnerable to the same economic and market forces, it has a much higher component of return from income than from value changes, and therefore is also somewhat like a bond. Even after adjusting to the true “cash flow” (NCREIF income less amounts reinvested in capital improvements) advocated, among others, by Young, Geltner, McIntosh and Poutasse (1996), income still represented 63 percent of the total return to institutional real estate from 1978Q1 to 1994Q1.

A paper by Booth, Cashdan and Graff (1989) suggested that commercial real estate returns can be separated into their two components: lease income and property value changes. Lease income can be viewed as an amortizing bond, whose value could be calculated by discounting the payments at the appropriate Treasury yield plus a risk premium based on tenant credit. The duration would be substantially less than the length of the



lease due to the amortization of the leasehold value to zero at the end. The residual value of the property (it's re-rent value at the end of lease) represents the equity component of return. Of course, the value trade-off between these two components of return depends on the terms of the lease — amount of expense pass-throughs, any Consumer Price Index (CPI) adjustments, renewal options, etc. A 30-year fixed lease to a AA-credit tenant, with all expense increases borne by the tenant, indeed would create a property investment that would behave very much like a bond in terms of price volatility, at least in its early years. On the other hand, a multi-tenant property with short leases (such as an apartment building) would behave much less like a bond and more like a short-term CD with a large “equity kicker” in the real estate valuation changes. Thus, one could argue that real estate volatility estimates should be somewhere between that of bonds and stocks, with the actual point depending on the average length of the leases involved and the terms of those leases. In short, the investor perception that real estate risk lies somewhere between that of stocks and bonds appears to be a sensible one.

1990s Crash Adds Urgency to Improving Real Estate Volatility Estimates

Prior to the 1990s decline in real estate, the conventional wisdom, even among real estate entrepreneurs, was that real estate values indeed were stable (low volatility). It was just that at times “there was a lack of liquidity.” That would have been similar to saying that one's portfolio of stocks did not decline on October 19, 1987 — it was really just a temporary lack of liquidity. In a real estate view, the whole value of corporate America could not have dropped 20 percent in one day just because a small percentage of shares at the margin traded down that much. Yet, in the world of financial investments, that indeed is how market values and price volatility are determined — by the price of shares traded at the margin.

In real estate, there is similar “trading at the margin.” If, on any day, a worried seller unloads a Houston apartment building at \$15,000 per unit to the best buyer available, on that day all Houston apartments should be valued in relation to that transaction. The standard rebuttal is that “there wasn't a price

drop, just a lack of liquidity.” The RTC (Resolution Trust Company) proved that there was enough liquidity to move hundreds of billions of dollars (pre-crash value) of mixed quality real estate, at the right price. While the reluctance of advisers to mark property down ended up spreading whatever “crash” there was over a period of several years, real estate finally did exhibit some of its long-suspected volatility of return. (While The RREEF Funds showed the earliest courage in marking down values in 1986, other properties finally were marked down in late 1995, two years into the current recovery!)

In any case, the very existence of a market crash led people to suspect that the old measure of risk — standard deviations of appraisal returns — was probably in need of some rethinking.

Improving the Risk Estimate, Method 1: Estimating from the Stock Market

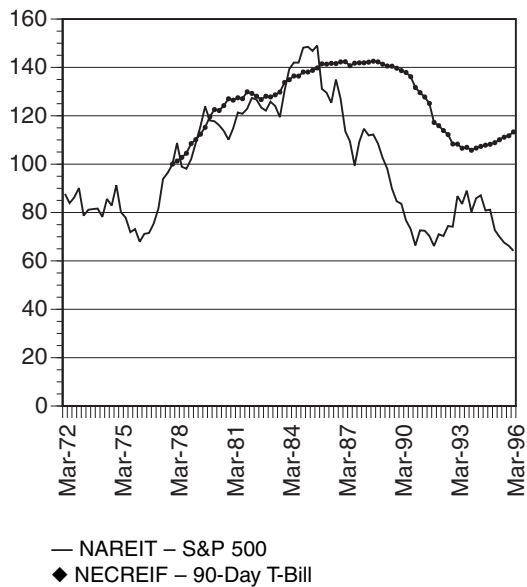
Gyourko and Keim (1993) constructed a real estate stock index composed of equity REITs (the largest weight), property operating companies, land subdividers, and general contractors. Based on the fact that this property stock index had a correlation coefficient of 0.75 with the S&P 500 Index, they simply subtracted the monthly S&P 500 returns from the property index returns to uncover the behavior of property values from 1978–91. The resulting wealth index peaked in May of 1983, and declined nearly 63 percent by 1991, a pattern that mirrors the deterioration of the real estate market fundamentals as property became overbuilt during the 1980s. (This was not just a small stock effect, as they performed the same analysis against an index of all NYSE and ASE stocks equal to the smallest 20 percent of the NYSE and found that property stocks declined an additional 25 percent from a plateau in 1986.) They then plotted the NCREIF index wealth net of T-bill returns (since netting the S&P returns out of the property stock index implicitly nets out T-bill returns) and found a similarly shaped pattern of rise and fall, but with a several year lag. In Exhibit 13 we have simplified the Gyourko and Keim property index concept by plotting only the data for equity REITs, which follows a similar pattern to the entire property index, but with the peak years coming in 1985 rather than in 1983. Still, the equity REIT return (net



of the S&P return) does a better job of tracking the deteriorating property market fundamentals than does the slower reacting NCREIF return (net of T-bill returns). It is inappropriate to draw more exacting conclusions because of the differences in composition between the two indices: NAREIT is predominantly apartment/retail and NCREIF is heavy in office and warehouse.

Exhibit 13

Cumulative Wealth Indices, January 1972 – March 1996 (December 31, 1977 = 100)



The volatility of the above property index was quite high, a 7.16 percent monthly standard deviation versus 4.63 percent for the S&P 500 and 6.55 percent for the small stock index. This likely sets the upper boundary for real estate volatility, particularly given the small stock nature of their universe.

Gyourko and Siegel (1994) took this work further by focusing on equity REITs from 1962 to 1993, and found a similar pattern of returns, but with REITs having an annual standard deviation of 20.2 percent, still higher than the S&P at 15.7 percent, but lower than the small stock volatility of 27.2 percent. Beginning with 1975, the growing sample of equity REITs further reduces the volatility figure to 15.4 percent (versus 13.9 percent for the S&P 500).

There still is the problem of comparing leveraged REIT returns with the all-cash NCREIF Index returns. Geltner, Rodriguez and O'Connor (1995) unlevered the NAREIT (all REIT) returns, by use of a weighted-average cost of capital model, which corrected for debt on both the asset and liability sides of the REIT balance sheet. This produced REIT compound returns of 11.6 percent for the years 1975–93, with a volatility of 13.5 percent. The correlation with the S&P 500 also declined a bit to 0.50.

In recent years, a new technique has been developed by Giliberto (1993), which removes the stock market influence on equity REITs by selling short the S&P 500 Index against the REIT portfolio — a “Hedged REIT Index.” Because the correlation of REITs with stocks varies over time, the actual amount hedged (the hedge ratio) is recalibrated monthly based on rolling 48-month correlations. In doing this, the correlation of the hedged REIT returns with stocks is reduced to only 0.22, while the correlation with the raw, or un-hedged, REIT index still is high at 0.82. The stock market effect has been greatly reduced by this hedging, without losing very much of the real estate-specific variability. The statistics are summarized in Exhibit 14.

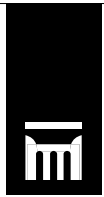
Exhibit 14

1978-3Q91 Annualized Quarterly Data

	Average Return	Volatility	Correlation with Hedged REITs
Hedged REITs (NAREIT)	10.3%	12.2%	1.00
Equity REITs (un-hedged)	16.7	15.7	0.82
Stocks (S&P 500 Index)	16.2	16.1	0.22
Bonds (Salomon Inv. Grade)	10.0	9.7	0.14
Real Estate (NCREIF Index)	9.9	3.3	0.18

Source: Giliberto, M., Measuring Real Estate Returns: the Hedged REIT Index, Journal of Portfolio Management, Spring 1993.

(See “Unsmoothing the Appraisals” in Chapter 2 for a discussion on the ostensibly low correlation of 0.18.)



This study finally found justification for the general investor perception that real estate volatility was something less than for stocks (in this case, 75 percent of stocks), but above that for bonds.

Liang and Webb (1996) further developed this work by extending it from January 1976 through December 1994, thereby picking up some of the effect of the growing market for larger capitalization REITs. They found that the hedged REIT index volatility had declined to only 69% of that of stocks, and the correlation with stocks and bonds virtually disappeared. (See Exhibit 15.)

Exhibit 15				
1/76 through 12/94 Monthly Return/Risk Data				
	U.S. Stock (S&P 500)	U.S. Bonds (L.T. Gov't)	Hedged Equity REITs	Int'l Stocks (EAFE)
Mean return	1.15%	0.81%	0.90%	1.24%
Standard Deviation	4.29	3.34	2.97	5.03
Correlation Coefficients				
U.S. Stocks	1.00			
U.S. Bonds	0.38	1.00		
Hedged Equity REITs	0.05	(0.01)	1.00	
International Stocks	0.43	0.25	0.14	
<i>Source: Liang, Y. and J. Webb, The Hedged REIT Index and Mixed-Asset Portfolios, Journal of Real Estate Portfolio Management, Vol. 2, No. 1, 1996.</i>				

As interesting as the hedged REIT work is, there remains the issue of comparability to institutional quality real estate, particularly in the years before 1990. Because of the small capitalization of early REITs, and the entrepreneurial nature of many of the early managers, REITs used to have much more of a retail property focus, primarily neighborhood shopping centers, often located in smaller metro areas, or in fringe areas of bigger cities, versus the large office or regional mall focus of NCREIF investors.

**Improving the Risk Estimate,
Method 2: Unsmoothing the
Appraisals**

Instead of seeking to estimate the volatility of the real estate market through the REIT proxy, some very interesting work has sought to

remove the appraisal smoothing effects from the NCREIF Index or similar appraisal-based indices, thereby viewing the true volatility of institutional quality real estate.

Geltner (1993) is the leading advocate for unsmoothing the appraisals by statistically revising the numbers based upon some important discernible behavior patterns:

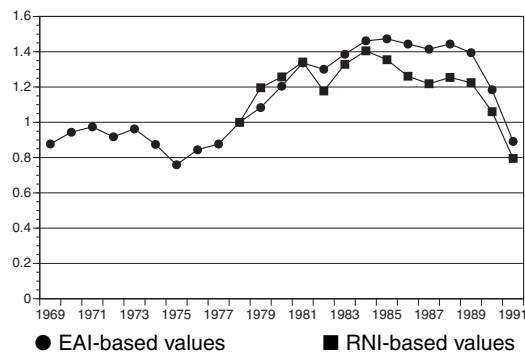
- The appraised values are strongly auto-correlated, indicating that appraisers use the previous appraised value as an important input into the new appraisal, and generally find it difficult to justify a large change from the prior value. Statistically, it appears that information from the prior appraisal is given at least equal weight as information from recent market transactions. Even in the fourth year from an appraisal, there is some 6 percent to 17 percent autocorrelation effect in the data. The possible reasons for this range from the sluggishness with which humans internalize changes in reality to the inherent conflicts built into the formerly common practice of basing management fees primarily on portfolio values.
- Many appraisals only are performed once a year at best. Thus, in any given quarter, a majority of the properties are unchanged in value from the prior quarter, and the only meaningful performance information is the net income from the property.²
- There also is a statistically observable seasonality to the appraisals. It turns out that there are about 3.5 times as many appraisals in the fourth quarter as there are in any other quarter.

Armed with this information, Geltner developed the mathematics to “recover” true market values from the appraisal data. He applied this to both the Evaluation Associates Index (EAI) from 1969–’91, and to the NCREIF Index from 1978–’91. The data from his study are plotted in Exhibit 16. In both cases, the un-smoothed values show the market peaked in 1984–’85, and that the 1990-91 decline was much steeper than is reflected in the indices. These figures seem much more real to industry professionals, than do the raw indices. While the autocorrelation of the recovered data is much less than for the raw data (only a partial one-year carryover effect in pricing versus a three- to four-year carryover influence in the raw data),



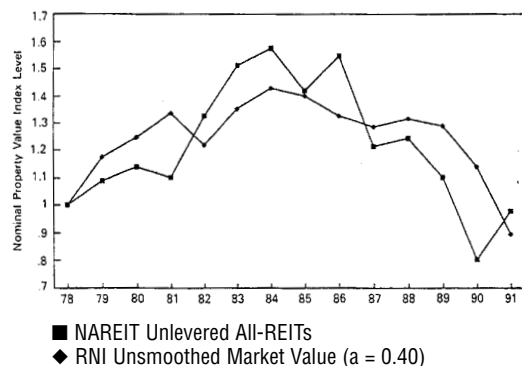
there still is some. In Geltner's sensitivity analysis, he found that the autocorrelation was reduced further if he assumed that the prior appraised value counted for a 67 percent weight in calculating the new price.

Exhibit 16
Estimated Unsmoothed Market Value Series



Finally, Geltner unlevered the NAREIT Index and compared the results with the unsmoothed NCREIF Index, with the data shown plotted as Exhibit 17. Although the data sample sizes are too small for statistical proof, the similarities in the curves are indeed striking. The NAREIT share prices are somewhat more volatile (at the cycle extremes), but follow the same trend, with the NAREIT valuation data leading the NCREIF appreciation data by roughly one year. Geltner concludes that perhaps institutional property appraisers could improve on their valuations by looking back at the REIT market, rather than by looking back at their own prior year appraisals! Again, we must caution that only the most general conclusions can be drawn when comparing the “apples and oranges” of NAREIT (apartment/retail) versus NCREIF (office/warehouse).

Exhibit 17
Unlevered NAREIT and Unsmoothed RNI-Based Property Values



The risk measures derived by Geltner seem to be a definite improvement on the raw data, as shown in Exhibit 18.

Exhibit 18
Standard Deviation of Appreciation Returns

NAREIT (1975-91)	EAI-Based (1970-91)	NCREIF-Based (1979-91)
Unlevered	Reported	Unsmoothed
14.6%	5.2%	8.7%
	Reported	Unsmoothed
	4.5%	8.3%

By Geltner (1995), the deteriorating real estate market resulted in increases of the unsmoothed volatility to 9.4 percent on the NCREIF appreciation, with offices and R&D exhibiting the highest risk at 14.1 percent and 14.6 percent standard deviations respectively. Correlation coefficients were 0.25 with the S&P 500 and -0.06 with long term government bonds.

At the same time, Salama (1995) merged the work of Geltner with the reallocation of capital expenses advocated by Young et al (1995), to determine an unsmoothed total return version of the NCREIF data. By adjusting the NCREIF appreciation numbers to their full price change (that is, to not remove capital investment from the final price as NCREIF does), and then applying the Geltner technique to the adjusted numbers, one gets a very volatile appreciation return indeed, as shown in Exhibit 19, copied from Salama.

In this exhibit, one can see the period of slow decline in the unsmoothed index from 1984 to 1990, as operating fundamentals deteriorated, but prices were artificially supported by the huge flows of capital. When capital dried up, the resulting plunge of our 50 percent in value from 1990 to 1992 seems credible in view of the actual prices paid by bargain-hunting investors in the early 1990s.

To get the unsmoothed total return series, Salama then adds back the adjusted income return figures (NCREIF reported income less capital reinvestment in the property) and finds a much higher risk — averaging a 17 percent standard deviation — than most other work to date. (Of course, the figure would have been smaller without the 1990-1992 crash, an event that may happen only once every 60 years, as discussed in Chapter 1.)

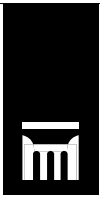
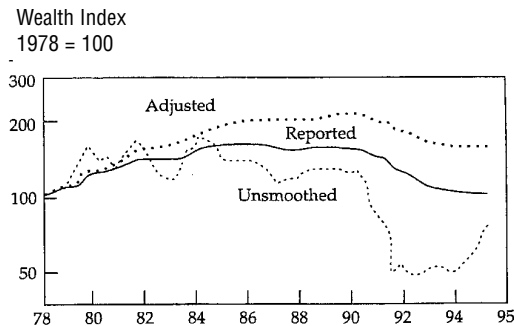


Exhibit 19
Russell-NCREIF Appreciation: Reported and Adjusted for Capital Expenditures
Dec. 31, 1977–June 30, 1994

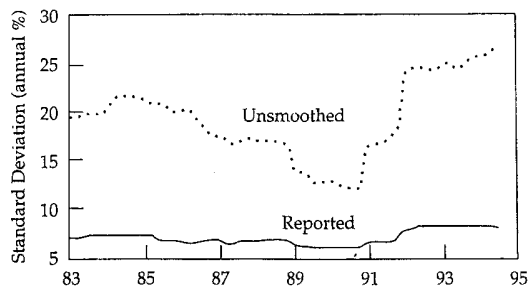


Source: Brinson Partners, based on the Russell-NCREIF Index

Real Estate Risk Varies Over Time

The next part of Salama’s work is particularly useful for asset allocation work. He calculated the adjusted and unsmoothed volatility for all trailing five-year periods since the NCREIF data began in 1978. What emerged was a picture of a highly variable risk for institutional real estate, as copied from his paper in Exhibit 20. The picture is intuitively appealing. As capital increasingly flowed into real estate in the 1980s, the risk measure gradually declined (much as the stock market risk has declined in recent years as the rising tide of mutual fund capital has buoyed it along). Then, risk rose dramatically as capital rapidly dried up and prices crashed.

Exhibit 20
Russell-NCREIF Risk: Trailing Five-Year Standard Deviation, Reported and Unsmoothed
Dec. 31, 1977–June 30, 1994

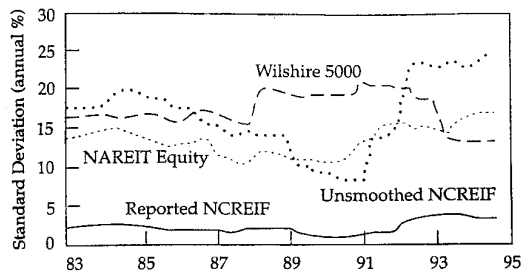


Note: Based on quarterly logarithmic returns.

Source: Brinson partners, based on the Russell-NCREIF Index

As we commented earlier in this paper, which return measures you select for real estate depend on which part of the cycle you are in. Similarly, which risk measures you use in your analysis also depends on your outlook from this point forward. This is not really any different from the difficulties in forecasting an appropriate return and risk for the stock market. Salama went on to calculate the standard deviation for the Wilshire 5000 stock index on the same trailing five-year basis, and prepared the graph in Exhibit 21.

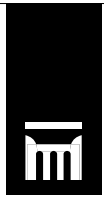
Exhibit 21
Risk Comparison: Trailing Five-Year Standard Deviation, Reported and Unsmoothed, for the Russell-NCREIF Data, Stocks and NAREIT Data
(Dec. 31, 1977–June 30, 1994)



Note: Based on quarterly logarithmic returns.

Source: Brinson partners, based on the Russell-NCREIF Index

Following the October 1987 experience in the stock market, stocks spent the next five years having a risk level well above that for real estate. Following the 1990–92 crash in real estate, its risk has risen back above that for stocks. It appears, then, that the objective is to develop a forward-looking asset allocation model, rather than one based only on history. It would have been better to buy stocks (versus real estate) in the late 1980s, even though the historic volatility was far above real estate. As we will argue later in this paper, now is the time to favor real estate (over stocks), even though its historic risk is currently high. As any good quantitative contrarian will tell you, there always are better values when the perceived risk is high than when it is low! Following a crash in any market, it is not illogical to forecast a period of lower risk in the near future. Crashes bring market prices more in line with fundamental values — more



“anchored” in reality. Prior to a crash, speculative forces tend to push prices too high, making them vulnerable to a crash. In effect, bull markets set the stage for volatility, and bear markets remove that volatility.

Volatility Risk Varies With Portfolio Size

Research indicates that real estate portfolios need to be broadly diversified over at least dozens of properties before the predictability of performance (and volatility) begins to approach that of common stocks. In the stock market, research has shown that a properly diversified portfolio of 20 or 30 stocks goes a long way toward approximating the performance of the broader stock market. Of course, in any one stock, there likely will be a broad diversification of product lines, brand names, market geography, etc. It therefore seems inappropriate to expect a portfolio of 20 properties to be as well diversified as 20 common stocks. A study by Young and Graff (1995) in fact concludes that the skewed distribution observed in the variability of return from property to property requires a much larger portfolio of properties than of stocks, where returns are more normally distributed. A fund of 10–15 properties can diversify away 52 percent to 58 percent of asset-specific risk, versus 68 percent to 74 percent if the returns were not normally distributed. Stated another way, to achieve a four-fold reduction in the magnitude of combined asset-specific risk requires 74 properties in the portfolio compared with 16 if asset-specific risk were normally distributed.

Toward Judging an Appropriate Number for Volatility

After plowing through all of the above methodology, institutions finally must come to a decision on what numbers to put into their asset allocation models. The answers will vary, depending on the point in the cycle, the fund’s objectives and the opinions of the players. The choices presented to this point are summarized in Exhibit 22.

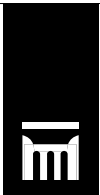
Of all the approaches, four seem to make more sense to us than the others:

- The unsmoothed NCREIF total return represents a statistically improved version of the institutional database itself;

- The unlevered NAREIT Index is a way of seeing public market volatility damped down to the traditionally unlevered institutional approach to property investment.
- The hedged REIT index is a way of looking at the public market volatility that remains after removing the stock market effects.
- The mid-point between stocks and bonds has intuitive appeal, as real estate has some characteristic component of each.

This gives us a choice of 17 percent, 14 percent, 11 percent and 11 percent to 13 percent as reasonable options for standard deviation of return for institutional equity realty investment, all somewhat higher than the generally accepted standard deviation measures of 8 percent to 9 percent. Looking forward from today, we would be inclined to use numbers at the lower end, say 11 percent or 12 percent, given the current low inflation environment and relatively balanced supply and demand situation in most real estate investment markets. Should we begin to enter a period of higher inflation and more aggressive levels of new construction, we would be inclined to use volatility/risk estimates at the higher end of the range.

Exhibit 22		
Various Approaches to Volatility Risk Measurement		
Methodology	Standard Deviation of Annual Returns	Time Period
NCREIF Based:		
Classic NCREIF	4%	1978-95
Levered NCREIF	8%	1978-89
Capitalized NCREIF Income	11%	1978-85
Unsmoothed NCREIF Total Return	17%	1978-94
Public Market REIT Based:		
Equity REITs unadjusted	20%	1962-93
Realty Stock Returns in Excess of S&P	24% (150% of S&P)	1978-91
Unlevered NAREIT Index	14%	1975-93
Hedged REIT Index (S&P 500 hedge)	11% (70% of S&P)	1978-91
Industry Perceptions:		
Survey of professionals	8-10%	Late 1987
Mid-point of stocks and bonds' volatility	11-13%	1978-95



With regard to which correlation coefficient to choose, one ideally should also be forward-looking, though this is conceptually even more difficult than forecasting volatility. In the absence of a better number, one could argue in favor of using the classic NCREIF figure of -0.3, since these appraised values are the ones that actually will be applied to pension fund or endowment reporting. Even if one were to select the unsmoothed NCREIF volatility and correlation figures as a pair for asset allocation work, the 0.25 correlation with the S&P 500 and -0.06 with long term bonds still serve to distinguish real estate's diversification benefits.

Downside Risk Analysis: "I Only Care About Not Losing Money!"

Gradually emerging as a new way to construct a frontier of efficient portfolios is to define risk by other measures than merely "volatility of return". One of those is downside risk analysis. For multiple-asset portfolios, it can be defined in various ways, such as:

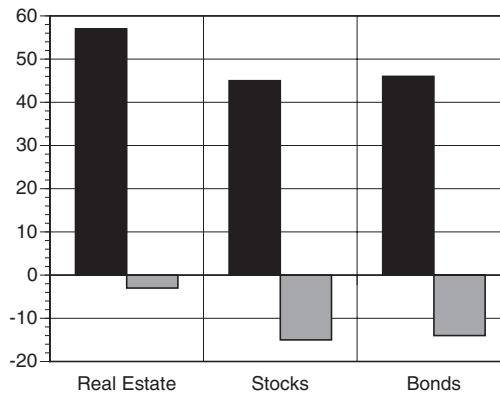
- Never losing money in any year (resulting in portfolios heavily oriented to cash)
- Not losing money more than 2 percent of the time in any three-year period (somewhat less conservative portfolios emerge)
- Not losing purchasing power over any 5-year period, etc.

In the 60 years of the most recent major real estate cycle, from the 1934 end-of-trough to the 1993 end-of-trough, there are only three years of clearly negative returns for unlevered real estate equity investments — 1991, 1992 and 1993. The others all had positive returns. Even if prices declined, the net income was more than enough to offset the effect and produce positive returns. That's three downside years out of 60, or 5 percent. Common stocks in this same period produced 15 negative years, or 25 percent. Supposedly lower-risk, long-term bonds had negative returns in 14 years, or 23 percent of the time. Investors who prefer loss averse portfolio objectives should ponder the chart in Exhibit 23.

Not only are there fewer downside years in real estate, the absolute magnitude of the losses is lower than for stocks. Because of the high cash flow component of return in real estate, the worst year was 1991 at -6.1 percent. Compare this to stock market years of 1973 at -14.8 percent and 1874 at -26.4 percent.

Exhibit 23

"Up" and "Down" Years for Real Estate, Stocks and Bonds: 1934-1993



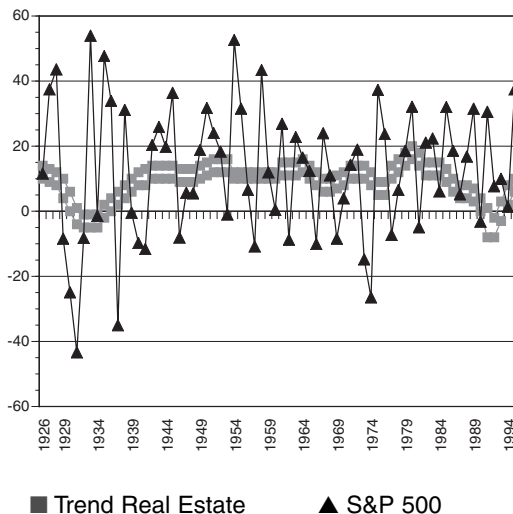
Sources: Chapter 1 and Appendix B data for real estate; Ibbotson Year Books for stocks and bonds

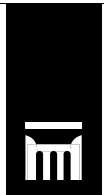
Real Estate vs. Stock and Bonds: The Long View

In Exhibits 23A and 23B we have taken the liberty to construct an "NPI-style" band of real estate returns for the period since 1926. It is our view of the likely range of real estate returns, using a four to six percentage point band width. In 23A, we also have plotted annual stock market returns from the Ibbotson data series.

Exhibit 23A

Real Estate Returns vs. S&P 500 Returns



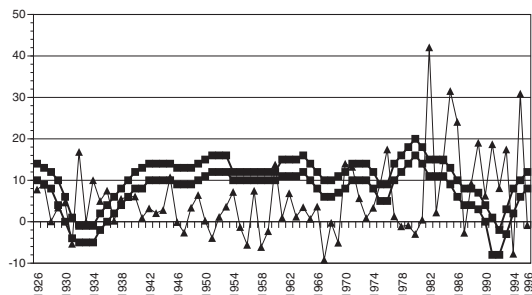


While stocks show a much more volatile return pattern, we know that the annual compounded return (IRR) over the whole period is about 10.5 percent. Out of curiosity, we calculated the IRR of the mid-point of the real estate band and found a result of 9.25 percent for the entire 78-year period. Since this included two long-cycle troughs, we also calculated the IRR for the past 60 years (1937-1996), and found a result of 10.0 percent. While these are not scientific results, they do point to a conclusion that, in the long run, equity real estate returns are similar to the returns obtainable in the stock market. Both are indeed equity investments. Investors, then, must choose between the volatility risk in the stock market, and the illiquidity risk in real estate. In the long run, the returns do not appear to be all that different.

In Exhibit 23B, we have added the long bond returns from the Ibbotson series to the real estate return band.

Exhibit 23B

Real Estate Returns vs. Long Bond Returns



- Trend Real Estate
- ▲ LB Returns/LT Gov. Bond Index

This exhibit is interesting for two reasons. First, real estate in this view offers superior stability of returns to those obtainable from the supposedly low-risk bond asset class. Second, bond returns only exceed real estate returns in the two periods immediately following the two inflation spikes of this century. This makes sense, in that these periods not only had high current yields (as a result of inflation) but also offered good capital appreciation as nominal yields declined. In the long run, the long bond total return is only a little over 5 percent, substantially below the approximately 10-percent returns available from real estate.

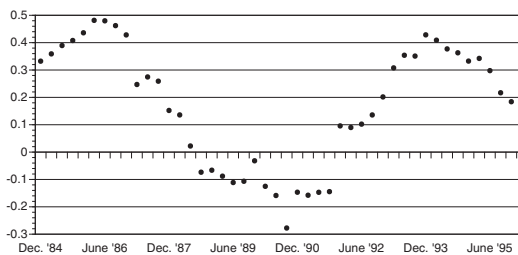
Such a long-view analysis would suggest a domestic investment strategy focused on only two asset classes at any point in time: stocks and bonds during the long period immediately following an inflation spike; and stocks and real estate during the period following a real estate bust until the next inflation spike suggests a shift back into bonds would be in order.

Real Estate and Inflation: Where is the Truth?

The classic view is that real estate is a hedge against inflation. As prices rise, rents and real estate values rise. Firstenberg, Ross, and Zisler (1988), for example, statistically found that “real estate returns have been a superior hedge against an increase in inflation or in interest rates, as compared with the experience of the stock market.” Yet, in the early 1990s, real estate failed miserably as an inflation hedge, leading some investors to conclude that real estate can no longer be relied upon in that fashion. Wurtzebach, Mueller and Machi (1991) concluded that real estate is an inflation hedge until the markets get out of balance (defined as vacancy rates above 10 percent). High vacancy rates make it impossible to continue to raise rents with inflation. Recent experience puts the early 1990s experience into proper perspective. Exhibit 24A plots the changing correlation of real estate returns with inflation.

Exhibit 24A

Rolling 28-Quarter Rolling Correlations NCREIF vs. CPI 1Q '78-1Q '96



When the markets are relatively stable, real estate returns exhibit a 30 percent to 50 percent correlation with inflation, but when market fundamentals deteriorate, real estate is entirely unable to keep up. Froot (1995) found the same thing for the longer data series from



Evaluation Associates (EAI), for 1970–93, that “real estate is at best marginally helpful in hedging diversified portfolios, even though real estate itself may be adequately hedged against inflation.” Instead, the most reliable hedging came from commodities and oil. Here again, the real estate return numbers include the market weakness of the early 1990s.

In our view, these periods of deterioration occur as a chain-reaction of events set in motion by a prior period of above-average inflation. Referring to Exhibit A-1 in Appendix A, we see that the boom–bust of the 1920s came just after the inflation spike of 1918–20, and the recent boom–bust was preceded by the high inflation of 1973–81. In both cases, the early reaction in real estate was a period of strongly improving net operating income and property value increases. Exhibit 3 earlier, in Chapter 1, plotted the rise and fall of NOI in the 1920s for three cities where we could find reliable data. Exhibit 24C plots the near tripling of investment in new construction in the United States as a result of the attractive yields. As the new supply of space outstripped the demand, rents softened and vacancy costs rose. As a result, NOI peaked between 1927 and 1930. The ensuing depression, of course, made things worse for awhile, though there was always a positive NOI for the markets as a whole. This looks surprisingly similar to the story of the 1980s, when rising rents and NOI brought in a flood of new capital and new construction. In short, real estate can be helpful with inflation, unless there’s too much inflation!

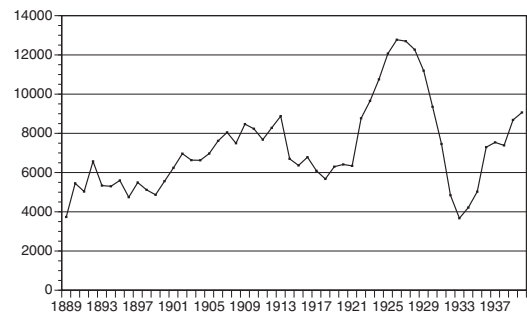
In order to smooth out the effect of the “boom–bust” period on the inflation correlation, Miles and Mahoney (1997) examined rolling 10-year periods, arguing that this is an appropriate perspective for such long-horizon investors as pension funds. The key findings of their study are shown in Exhibit 24B.

Exhibit 24B			
1971–95 10-Year Total Returns			
Correlation Matrix			
	Actual Inflation	Expected Inflation	Unexpected Inflation
S&P 500	-0.765	0.399	-0.803
LT Govt Bond	-0.942	0.187	-0.799
NCREIF [RF1]	0.892	0.169	0.540

Their conclusion is that, while real estate does not exhibit a perfect one-for-one correlation with unexpected inflation, it does offer some hedge against the disastrous negative effect of unexpected inflation on stocks and bonds.

Exhibit 24C

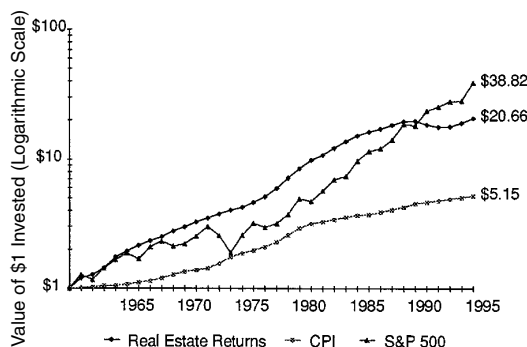
Total Expenditures for New Construction in Constant 1929 Dollars: 1889–1940



Another way of looking at the relationship of real estate returns to inflation is to plot the compound returns of real estate versus inflation on a simple “growth of a dollar” chart as shown in Exhibit 25.

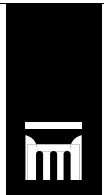
Exhibit 25

Real Estate, Stocks and Inflation (Growth of \$1.00) 1961–1995



Source From Appendix B: Kelleher 1961-1970; FRC 1971-1977; NCREIF 1978-1995

How does the picture of real estate and inflation look over the truly longer term? Arbour (1993) has compiled some statistics for the national office market from 1920 through 1992, based on data collected over the years by the Building Owners and Managers



Association (BOMA). Exhibits 26–27 are from his work. Exhibit 26 plots office rental rates versus the CPI, with the implication that there is a strong correlation with inflation. The income component of real estate does indeed track very closely with inflation. In Exhibit 27 he calculates office building rents, expenses, and NOI per square foot, in constant dollars. All three lines are remarkably stable in real price terms through inflation, deflation, war, and depression! NOI has been in the range of \$5 to \$10 per square foot for the entire 73 years, with the brief periods above \$9 only occurring just prior to the building booms of the 1920s and 1980s. (The high levels of 1930–31 are more the result of strong deflation — 10 percent per year — on existing fixed leases than of a strong office market.) Over the long run, real estate income appears very good at preserving the purchasing power of invested dollars.

Exhibit 26

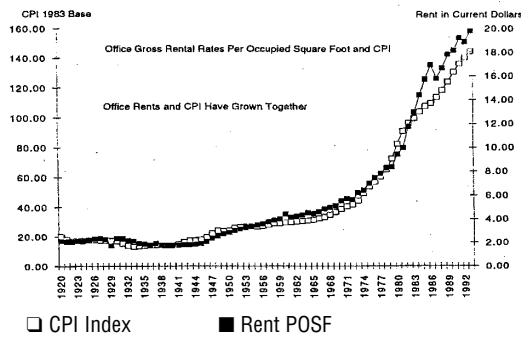
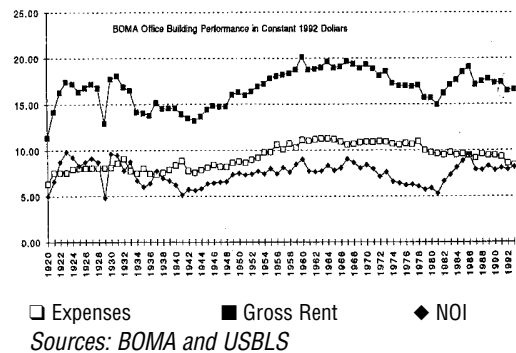


Exhibit 27



Our conclusion, then, is that real estate returns over the very long run are correlated with inflation, and that property portfolios during most periods will help hedge a diversified

portfolio against inflation except in periods after inflation really heats up. Then the capital markets create the major boom/bust peaks as they seek to capitalize on the inflation premium in the returns. The key, then, is to keep an eye on the capital markets following periods of unusually high inflation. If capital flows excessively to real estate, it is time to look elsewhere for your inflation hedge.

Liquidity Risk and Investor Control: New Policies for the '90s

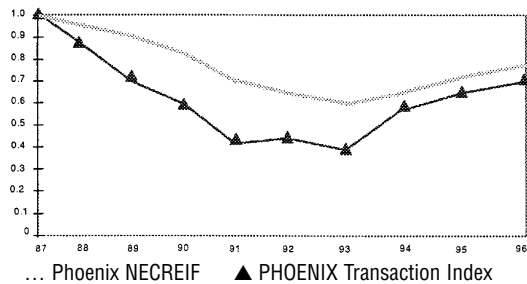
As we discussed earlier in this paper, institutional investors were distressed greatly by the inability to get out of their investments in commingled real estate equity funds (CREFs) in the early 1990s. Donaldson (1995) puts the total in about 200 such funds at over \$55 billion. Even though the advisers of those funds had offered (but not guaranteed) to redeem investors who wanted out, the greatly reduced liquidity of those years resulted in price declines that were generally unacceptable. The RTC auction program for liquidating properties and loans from failed Savings and Loans showed that there was liquidity, but only at very low prices. For the CREFs (and real estate separate accounts), the effect of appraisal smoothing (relying heavily on the prior appraised value) became even more dominant, as there were even fewer (and often less reliable) market transactions between free and willing buyers and sellers. And, there was a great reluctance on the part of advisors to sell properties unless the price they could achieve in the market was reasonably close to the recent appraisal. As a result, there were few transactions and most liquidation requests remained on waiting lists.

A particularly good illustration of the appraisal-induced liquidity gap is found in a recent paper by Downs and Slade (1997) of the University of Georgia. They studied 937 Phoenix office building transactions from 1987 through 1996. (Arizona law provides for considerable public data on property transactions, thereby offering a sizable data set for their study.) They developed a mathematical model to normalize all properties over 5,000 square feet to institutional property pricing, in order to provide their transaction index with comparability to the appraisal-based NCREIF Phoenix Index. In Exhibit 27A, we plot the two indices.



Exhibit 27A

The Phoenix Office Market Story Price Index Comparison



Source: Downs & Slade, University of Georgia, 1996

The transaction index dropped 59.2 percent from 1987, bouncing along a three-year bottom beginning in 1991, while the appraisal index declined only 43.6 percent to a later 1993 bottom. This explains why real estate advisors claimed there was a “liquidity” problem. Indeed, at their carrying prices on the properties, they could not find a buyer. Yet, there were transactions occurring at the time, just at lower prices! (Incidentally, this also explains the low returns posted to date by the NCREIF index. The Phoenix transaction index shows a 54.6 percent recovery in price from the bottom, while the NCREIF Phoenix index only required a 12.7 percent rise to get back to today’s levels.)

One potential solution to the liquidity problem that is emerging is to develop a secondary market for interests in CREFs, whether they are insurance company funds, group trusts, or private REITs. The two current approaches — Secondary Market Acquisition of Realty Trust Shares (SMART) which began in 1994, and the Institutional Real Estate Clearinghouse which just received its S.E.C. approval via a no-action letter in June of 1996, offer potentially successful methods for matching institutional buyers and sellers and providing information that enables them to negotiate a mutually satisfactory price for the trade. The pricing issues involved in such illiquid securities are discussed by Donaldson (1994) and (1995).

Today, adequate liquidity has returned to most real estate property sectors, and market prices have recovered back up to the now reduced appraised values. Some of the more experienced institutions have added to their portfolios through separate accounts. More

aggressive ones have purchased CREF shares from other institutions at a discount. Yet, for many institutions, the memory of the early nineties lingers on and their feelings are being acted out in four ways:

- By reducing or eliminating their allocation to real estate
- By investing only in publicly traded REITs
- By investing in “opportunity funds,” where the shorter time horizon and potential high rates of return make the illiquidity tolerable
- By investing only in non-traded securities where the investors exercise independent control over the advisor, either through separate account ownership or through independent boards of private REITs

The purpose of this paper is to examine why it might be imprudent to pursue approach #1 above: real estate offers competitive returns in the long-run, and the next period of high risk is likely to be many years ahead of us. But, what of the other options?

Approach #2 may be giving institutions a false sense of security about liquidity. There are 19 individual corporations, such as Intel or Pepsico, whose market capitalization is larger than the combined \$50 billion capitalization of all equity REITs as of July 1996. The largest REITs currently run from \$2 billion to \$3 billion in market value, which places them well below the \$5 billion median stock in the S&P 500 (as of July 5, 1996). Even in large cap stocks, there are temporary liquidity problems (i.e., price collapses) when there are negative surprises and a number of sellers want out at the same time. When Pepsico fell 7 percent on 9/27/96, \$636 million, 1.4 percent of its \$44 billion in capital changed hands. When Texaco fell 10 percent on 9/24/96, \$960 million, or 1.1 percent of \$84 billion traded. By comparison, in the same month of 1996, the top 22 publicly traded REITs combined traded an average of \$31 million per day, or 0.15 percent of their \$20.5 billion capital value. More importantly, 50 percent of current REIT capital is held by institutions, indicating the potential for serious liquidity problems should institutions want to seriously reduce their REIT holdings in a short time period. Whether or not an actual liquidity crisis ever will occur is, of course, difficult to predict. However, at this point in their development, publicly traded



REITs offer limited liquidity and should therefore realistically fill only part of the real estate asset allocation.

Approach #3 is appropriate for those portfolios that have a high return and high risk objective for a portion of their funds, similar to an allocation for venture capital. Many of these funds employ some combination of high leverage and/or partnership shares or other co-investment, all of which serve to potentially increase both the return and the risk. Should any problems develop with some of these investments, liquidity could become a serious issue.

For those institutions desiring a meaningful allocation to equity real estate, there remains approach #4. The options are either to own it directly (usually through separate accounts) or to own it through a vehicle where the investor retains the ability to control the key issues: the ability to hire and fire management; and the ability to call for liquidation of some or all of the portfolio to meet investor liquidity needs. Given the need to own at least 40 or 50 properties (roughly equal-weighted) according to Brown and Schuck (1996) and Ziering and Stoesser (1997) or considerably more, according to Young and Graff (1995), only the largest funds would have the \$500 million-plus real estate allocation required to control its own portfolio directly.

That essentially leaves the emerging field of private REITs as a major vehicle of choice for institutional investment in equity real estate. Because of the recognized rules regarding REIT securities, there exist several potential avenues for liquidity. One is for the REIT to go public (an IPO). Another is for institutions to negotiate transactions among themselves on the private market. It is also easier to admit new capital or redeem existing capital by issuing or redeeming shares at the net asset value (NAV). Absent these alternatives, there remains the option for the investors of organizing among themselves to pressure the existing Board of Directors (or elect new directors) to meet investor objectives or to sell properties to meet investor liquidity demands. Some commingled real estate funds (CREFs) have dealt effectively with many of these issues through the use of advisory councils.

The Risks We Don't Yet Know

In recent years, institutional investors are finding increasing security in the new models for risk management, and for measuring success in achieving risk and return versus various benchmark portfolios; particularly in stock market investing. Peter Bernstein (1996), however, sees three real dangers in becoming too reliant on the complex and often arcane, computer-driven mathematical models.

One is the exposure to discontinuities. Risk models are based on historic observations, but history only provides us with one (evolving) sample of the economy and the capital markets, instead of the thousands of separate, autonomous, and stochastic numbers required so that the laws of probability truly apply. Even though most models assume normal distributions, there always are outliers, and these are where the potential for wildness occurs, "wildness" that could lead either to extraordinary profits or extraordinary losses. For example, from 1871 (the beginning of reliable data) to 1958, stocks always yielded more than bonds because of the risk premium assigned to equities versus debt. Yet, since 1958, bond coupon yields have averaged 3.5 points more than stocks dividend yields. No computer model of the 1950s could have anticipated an event that had never happened before.

A second danger lies in believing that discontinuities are anomalies. The rising awareness of chaos theory indicates that the unexpected is to be expected!

Thirdly, reliance on the tools of risk management encourages the taking of risks one would not otherwise take. Whether it is the reliance on portfolio insurance, or the belief in the long term dominance of equity market returns over any other form of investment, Bernstein believes we should be wary of increasing the total amount of risk in the system. Research shows that the security of seatbelts encourages more aggressive driving, with the result that there are more accidents, even though the seriousness of injury is less in any one accident. October 1987 was perhaps only a glimpse of the future.

What is the antidote for over-reliance on historic models? We see at least two approaches: forecasting and diversifying. The intuitive



capability of the human mind can forecast that real estate should return 12 percent or more per year from the depths of 1993, and be much closer to the truth than any model based on the NCREIF history of 8-percent returns since 1977. Today's acquisition cap rates of 9 percent added to a 3-percent increase due to inflation, could easily generate 12 percent returns to an average portfolio. To get an 8-percent return would require some capital devaluation.

More importantly, to defend against what we cannot anticipate, investment professionals have one reliable tool to fall back on: diversification. For this reason alone, if for no other, real estate deserves serious consideration for inclusion in pension portfolios, as does every other class of investment assets. At least with diversification, you probably won't lose everything at once.

Conclusion to Chapter 2

Even though real estate markets are influenced by the same economic, inflation, and interest rate forces that influence the stock and bond markets, non-securitized equity real estate does offer an important difference — the way the returns are measured. Stocks and bonds (and REITs) are marked to the market daily, and have the kind of volatility and correlation coefficients associated with public markets. Equity real estate (and venture capital, farmland, etc.) offer the benefits of appraisal smoothing and reduced or negative correlations with stocks and bonds that can be very helpful in smoothing out the impact on actuarial models for pension liability funding. Further, the high income component of real estate can help maintain the spending programs set by endowments.

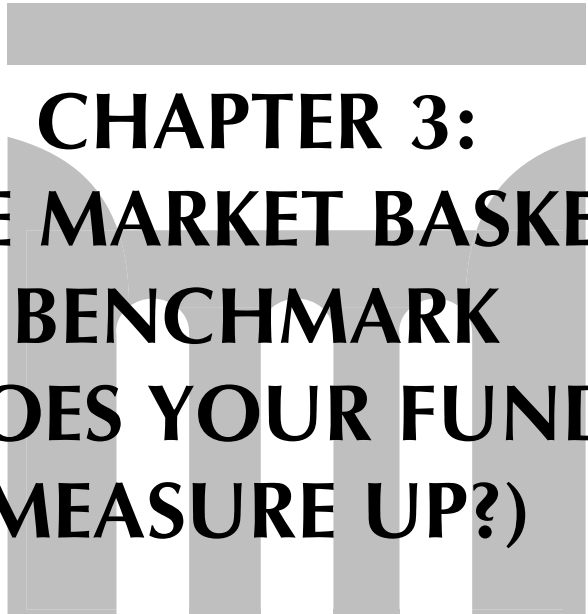
While it is true that real estate equity investments are not as low-risk as was touted prior to the 1990s, neither are they as risky as some nay-sayers might speculate. Instead, we draw the following conclusions as a guide to considering institutional real estate investing.

- NCREIF data in current form should not be relied upon for calculating efficient portfolio indices. Other, more sophisticated measures have been developed that show the volatility, or standard deviation, of return is approximately equal to or somewhat less than that for stocks,

and it varies over time (as it does for all asset classes) — sometimes rising above stocks. The implication is not to let historical statistics rigidly drive your portfolio models. Instead, use them for insight into the figures you put into your forecasting model.

- Even the highest correlation coefficients for non-securitized real estate indicate that it offers substantial diversification benefits for portfolios that otherwise would have only stocks and bonds.
- For those portfolios concerned only with downside risk, real estate has been clearly superior to either stocks or bonds over the long term, in terms of both the frequency and magnitude of negative return years.
- Portfolios concerned with maximizing total return, should focus on stocks and bonds in the years from inflation spike to real estate trough, but should focus on stocks and real estate in all in-between years.
- While real estate does not appear to strongly hedge diversified portfolios against inflation, by itself; it does benefit from inflation over the long term. In the short run, periods of high inflation can lead to temporary periods of instability and negative returns.
- The liquidity risk of real estate is probably overstated by those who are unwilling to acknowledge the extent of the true price volatility that exists in market bottoms. At some price, there always is adequate liquidity for property. In any case, it can be more effectively dealt with by investing in vehicles with better transferability and a higher degree of investor control than was available to investors in the old commingled real estate funds.

Finally, we can never anticipate all the risks, nor know all the discontinuities that might occur in the investment market relationships. If one believes this, then having more asset classes in the portfolio probably represents a diversification, risk-reduction measure, versus an approach that emphasizes only one or two asset classes. In adding asset classes to reduce total portfolio risk, real estate equity must be given serious consideration as a proven mainstream choice.



**CHAPTER 3:
THE MARKET BASKET
BENCHMARK
(DOES YOUR FUND
MEASURE UP?)**

The U.S. Pension Fund Asset Mix Changes Over Time

Prior to the passage of the ERISA Act of 1974, pension funds often limited their investments to government securities, high-grade bonds, mortgages, and large-cap stocks. In fact, the focus used to be so conservative that state and local government funds in 1962 only had 3 percent of their assets in common stocks, according to Census Bureau statistics. Today this same group has more than 44 percent in domestic equities. Once the law dictated the concept of diversifying over a broader range of more risky assets, pension funds began searching for more and better places to invest their money. Exhibit 28 shows the growing trend in the past 14 years. Exhibit 29 illustrates the most recent asset mix reported by the type of plan sponsor.

Exhibit 28										
Percentage Asset Mix of U.S. Pension Funds for Selected Years										
	1996	1995	1993	1992	1991	1988	1987	1984	1982	
Cash	4.6	5.1	5.7	6.0	6.5	8.8	8.5	10.5	11.3	
Domestic Bonds, GICs, Mortgages	32.4	35.0								
Int'l Bonds	1.5	2.2								
Total Fixed Income	33.9	37.2	40.0	41.1	38.6	43.0	39.0	44.4	47.2	
Domestic equities	48.8	45.8	43.6	43.0	37.5	40.1	44.8	39.3	36.6	
Venture capital	0.8	0.6	0.5	0.5	0.5	1.0	0.6	0.3	0.1	
Int'l equities	8.5	7.8	4.5	3.7	3.0	2.5	2.5	2.1	0.4	
Real estate equity	2.7	2.9	3.0	3.3	3.7	3.3	3.2	2.6	2.1	
Other	0.7	0.7	1.6	1.6	10.2	1.3	1.4	1.1	2.3	

Source for Exhibits 28 and 29: *The Money Market Directory of Pension Funds and Their Investment Managers: 1997, 1994, 1993, 1992, 1989, 1988, 1985, and 1983*. Allocations are only for those pension funds that responded to the survey question — representing \$1,143 billion in corporate funds, \$102 billion in union funds, and \$1,347 billion in government funds, for a total of \$2.6 trillion in funds for 1995, out of a total pension fund universe of \$3.28 trillion.

Exhibit 29

1996 Asset Mix by Type of Sponsor

	Corporate	Union	Government
Percentage of \$ reporting	67.1%	43.6%	96.7%
Cash	4.2	5.5	5.0
Domestic bonds, GIC's, mortgages	28.1	48.2	34.8
International bonds	1.3	0.2	1.9
Domestic equities	53.4	40.5	44.7
Venture capital	0.7	0.0	1.0
Int'l equities	9.2	0.9	9.0
Real estate equity	2.1	4.0	3.2
Other	0.9	0.5	0.4

In 1982, only 4.9 percent of pension fund assets was invested in what were then the “non-traditional” asset classes of venture capital, real estate equity, international equities and bonds, and the collection called “other.” By 1995, this group had grown to 14.2 percent of the total.

In Exhibits 30 through 33, we have plotted the changing percentage allocated by pension funds to each asset class (shown as vertical bars) against the cumulative returns since 1982 for that asset (shown as a line). From these illustrations, it appears that in the aggregate, pension fiduciaries have behaved as prudent contrarians in two assets — bonds and international stocks, and as trend followers in the others — domestic stocks and real estate. Bond holdings were highest at the 1982 inception of its bull market, and the share for bonds has been gradually reduced as yields have fallen. In international equities, pension funds moved to a new high in allocation by 1984, just in time to catch the strong move through 1989. Then, following the poor performance of the 1990–92 period, pensions again moved up the allocation, in time to catch the recent recovery of the foreign markets. Both moves showed excellent foresight on the part of pension funds as a group.

The picture in domestic equities is somewhat mixed, though the general trend has been to enable the allocation to move ever higher in order to capture continued bull market returns without much consideration to reducing the exposure to ever higher, and riskier, valuation levels. In real estate, the allocation process appears to reflect a “rear-view mirror”





strategy: when returns are good, increase the allocation, and vice-versa. Both international equities and real estate are relatively new asset classes for pension investors, yet investors somehow found the courage to increase their foreign stock holdings when prices were low, but did not act on the same conviction when real estate was cheap.

Exhibit 30

Cumulative Stock Returns vs. % Weight of U.S. Stocks in Pension Funds

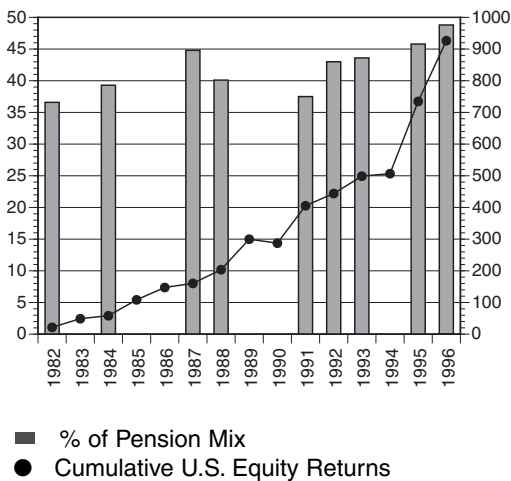


Exhibit 31

International Stock Returns vs. % Weight of International Stocks in Pension Funds

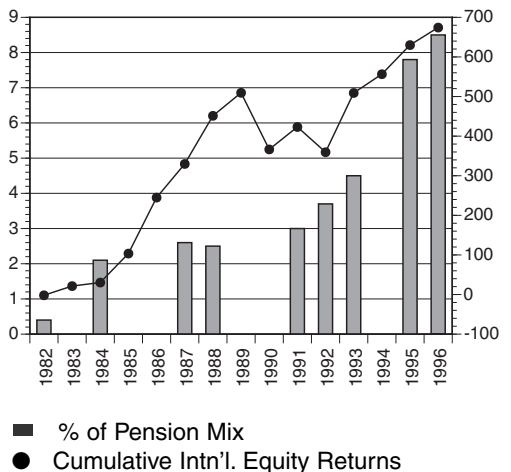


Exhibit 32

Cumulative Real Estate Returns vs. % Weight of Real Estate in Pension Funds

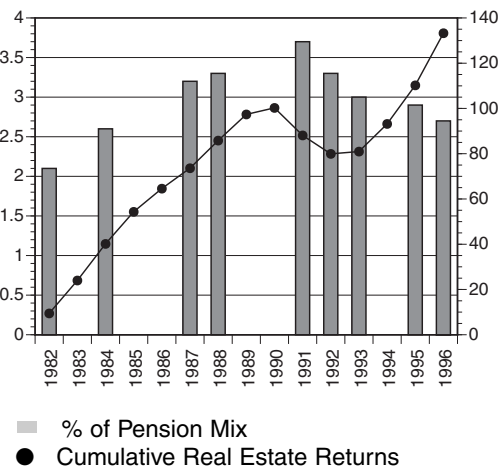
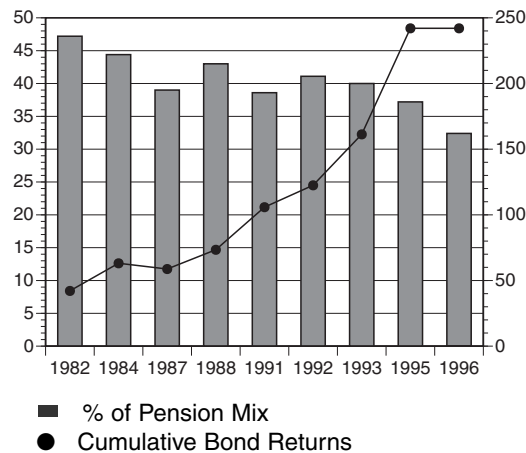


Exhibit 33

Cumulative Bond Returns vs. Weight of Bonds in Pension Funds



The peak year for holding real estate in pension portfolios was 1991 (3.7 percent), just as the market began its decline. According to Bajtelsmit and Worzala (1995), the typical large pension fund had approximately 4 percent in equity real estate in 1991, with a range from 0 percent to 8 percent (one standard deviation of the sample). Compare this to the asset allocations from some other major industrialized countries, shown in Exhibit 34.

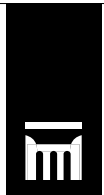


Exhibit 34					
Pension Fund Asset Allocations Around the World (Year end 1992)					
	U.S	U.K.	Netherlands	Switzerland	Japan
Domestic equities	49%	56%	8%	9%	24%
Intn'l equities	3	21	11	2	5
Domestic bonds	33	9	61	59	54
Int'l bonds	1	3	6	4	9
Cash	12	4	3	10	5
Real Estate	2	7	11	16	3

Source: *Pensions & Investments*, May 2, 1994, p. 10

U.S. pension funds were the most timid of the group in investing in real estate, (or, for that matter, in the other “non-traditional” asset classes of international bonds and stocks).

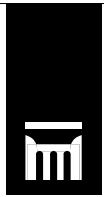
It's difficult to predict where the trends in asset class diversification will lead, but it does seem clear that the move toward broadening the opportunity set continues. Because the decisions about what and how much to include in your universe are not easy, the more common benchmark is to compare oneself against the peer group of investors. For pension funds who prefer to stay with (or ahead of) the pack, this implies the need for some forward thinking. Perhaps it would be useful to take a look at the relative size of the major components of the investable universe for institutions.

Pension Funds' Share of World Wealth

In Exhibit 34B, we show how the investable markets of the world look to a U.S. pension fund. We have left out foreign bonds because the currency risk prohibits as large an allocation as the very large size of the universe would suggest, and we have left out municipal bonds because their low yield makes them generally undesirable for tax-exempt investors.

Exhibit 34B			
Investable Markets Universes vs. U.S. Pension Allocation (in billions)			
Asset Class	Investable Universe		1996 Pension Allocation
	\$	%	
Fixed Income			
Commercial Paper & Bankers' Accept	\$ 777		
Treasury Securities	3,706		
Government Agencies	899		
Corporate Debt	2,959		
Mortgage-backed securities (all)	1,679		
Total Fixed Income	\$10,020	37.8%	37.0%
Int'l Fixed Income	Not Included		1.5
Domestic Equities			
Wilshire 5000	7,198		
Public REITs	(78)		
Total Domestic Equities	7,120	26.9	48.8
Int'l Equities (MSCI-EAFE)	5,698	21.5	8.5
Com. Real Estate			
Office Buildings	832		
Retail Properties	1,191		
Industrial & Manufacturing	570		
Apartments	996		
Hotels	185		
Owned by Public Corporations	(1,200)		
Com. Mortgage Securities	(105)		
Total Commercial Real Estate	2,469	9.3	2.7
Venture Finance	136	0.5	0.8
Other			
Oil and Gas	87		
Agriculture	865		
Timber	77		
Total Other	1,029	3.9	0.7
TOTAL	\$26,472	100%	100%

Source: Mike Miles and Nancy Tolleson, “A Revised Look at How Real Estate Compares with Other Major Components of Domestic Investment Universe”, *Real Estate Finance*, Spring 1997; plus data from Exhibit 28.



The 1996 pension fund mix has definitely moved closer to the investable universe than, say, in 1982, when there was 58.5 percent in cash and bonds, 36.6 percent in domestic equities and very little else (Exhibit 28). The movement out of domestic bonds and cash into international equities, real estate, venture capital and alternative assets all have served to move the mix closer to the market basket. However, the movement of additional funds into domestic equities has continued to push the pension mix farther away from the benchmark, encouraged no doubt by the strong returns and reduced volatility in that market in recent years.

To us the question is: Why should pension funds double weight domestic equities while carrying only a one-third weight in real estate equity? The returns from each market are comparable over the longer term, yet they have a low correlation with each other. Investor concerns from the 1980s are being addressed by the new governance, liquidity and portfolio management approaches of the 1990s. If anything, given the information inefficiencies in the property markets, and given management's ability to add value to properties — while portfolio managers struggle to keep pace with market indices in public equity markets — one could argue that real estate should be the overweighted asset class, not equities. And, today's property markets offer real value, now that the boom-bust of the '80s is past, while the domestic stock market pushes into record-high valuation realms.

Either pension funds are accurately forecasting that domestic equities will continue to outperform all other major asset classes, or they will spend some time with returns below those that will be obtained by the investable universe.

It's a Big World Out There

Depending on which definition of the "investable universe" one selects, there are some \$10 to \$30 trillion of investment assets (stocks, bonds, real estate, etc.) available to own, and U.S. pension funds own about \$4 trillion of them. While pension funds owned 30.5 percent of the \$4.6 trillion in domestic, publicly traded equities in 1993, they only owned some 2.8 percent to 8.7 percent of the \$1.1 trillion to \$3.5 trillion domestic commercial property market. Many pension funds

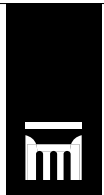
probably never even thought about their market shares of the investable universes, yet, in reality, the minimum benchmark return should be aiming to match the weighted average return of all the assets available to them. While it appears that the capital market forces are moving in that direction, what is the size of the benchmark market?

Modern work on this issue was begun by Ibbotson and Fall (1979) for the domestic universe, and continued by Ibbotson, Siegel and Love (1985) for the global universe. However, this early work was limited by data availability, so, for example, real estate consisted primarily of single-family homes, along with farmland, with the later work also including a modest estimate for the cumulative construction value of business real estate.

Brinson (1987) continued this work on 1984 data by defining an "investable capital market" of \$10.7 trillion, of which \$1.4 trillion was in real estate. However, because 25.1 percent of this universe was in foreign bonds, and 12.6 percent was in international equities, he developed a "Multiple Markets Index" (MMI) to deal with the "characteristics of U.S. pension plans that render the investable capital market portfolio unsuitable." Even though this was a less bold version of an investable market benchmark, it still represented a pioneering effort in what today looks like a typical globally balanced portfolio approach. International bonds and stocks were allocated 10 percent each, and real estate was put at 15 percent, but there was no compelling relationship to any measurable benchmark.

From various 1988 and 1989 databases, a number of studies attempted to estimate the total value of U.S. real estate. These studies, summarized by Miles (1990), produced values for commercial real estate ranging from \$1.3 million to \$4.7 trillion, and each was vulnerable to some serious criticism.

Finally, recent studies based on property tax rolls and metropolitan commercial property surveys have produced some more usable numbers. Miles et al (1991) compiled data from 36 usable county property tax records, and calculated market values from assessment ratios for all commercial property in each county. They then estimated the values for other counties by regressing certain census variables and comparing the totals with state



level aggregate data. This data was used as input to the Arthur Andersen study to develop the totals for multi-family and for commercial property. Miles (1994) uses this data, and adds in an estimate for hotels, before subtracting out of total commercial an estimate for how much of this property might be owned by corporations, as well as what is known to be owned by REITs, to arrive at a private market equity value of \$2,229 billion. Hartzell et al (1994) sought to improve on this work by expanding the data collection to 44 MSA's and developed a new set of regression equations based on this data to estimate the total U.S. market. Their total value (excluding apartments) came to \$2,429 billion.

The biggest drawback of these property tax roll studies is that they were unable to distinguish institutional-grade investment property from a corner gas station, a branch office of a bank, or an automobile assembly plant. Hartzell did seek to isolate institutional grade office buildings by surveying professionals in Philadelphia and Seattle and using the results to estimate those totals for all other "old" and "new" cities in the United States. The result was that institutional-grade office properties in 1989 represented an estimated \$271 billion, or 28 percent, of the value of total office properties in the United States.

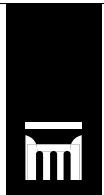
Holden (1993) sought to value all institutional commercial property markets directly via various surveys. By compiling survey data from brokerage companies, FW Dodge, BOMA, etc. for the top 100 metropolitan markets (out of 440 MSAs in the United States), she sought to isolate true "institutional grade" property from all other property. Such brokerage industry surveys generally exclude owner-occupied buildings, government and medical buildings, heavy manufacturing property, stand-alone small shops, restaurants, etc., and properties that are obsolete, abandoned, or otherwise not Class "A" or "B" space. In short, because the surveys only include properties that tenants might be interested in renting, they are also likely to be ones that investors would be interested in owning. Once all the square footage for each market was collected, there was the issue of valuation. Holden developed estimates of market value per-foot, by region and by property type, consistent with national sources and in-house databases at the RREEF company. Her calculated value of \$960 billion for the institutional-grade market does

not include multifamily properties, because the quality of survey data is highly variable and often incomplete from market to market. All of the above market estimate studies are summarized in Exhibit 35.

Exhibit 35					
Recent Estimates of U.S. Real Estate Market Value Compared (\$ Billions)					
Data as of:	Miles (1994)	Arthur Andersen (1991)		Hartzell (1994)	Holden (1993)
	1989, est. 1993	1989		1989	1990
Retail		\$1,115	32.1%	\$ 854	
Office		1,009	29.1	958	375
Warehouse/R&D		223	6.4	292	265
Manufacturing			0.0	325	
Total commercial	\$2,655	\$2,347	67.7%	\$2,429	\$960
					plus: est.
Multifamily	1,122	1,122	32.3		458 ¹
Hotel	212		0.0		84
Total Property	\$3,989	\$3,469	100.0%		\$1,502
Commercial Mortgages	-981				
Public company-owned	-743 ²				
REIT capital (2/28/94)	-36				
Private equity	\$2,229				

¹ Holden's study dealt only with commercial property. For purposes of estimating a total universe, we have imputed a value for institutional-grade apartments buildings at 32.3 percent of total properties, the same proportion as in the Arthur Andersen report.

² Arbitrary estimate of 25 percent of non-securitized commercial property equity. The \$743 billion result is equal to 11% of total corporate assets.



The consistency of the above studies leads to some potentially useful conclusions. First of all, the studies based on property tax rolls are quite similar to each other, and consistent with total state tax rolls for the 27 states where such data exists. (The differences between the studies appear to be due to a somewhat different set of MSAs, and to differences in regression equations used to extrapolate to MSAs not in the data collection sample. The biggest question mark hanging over the studies lies in the fact that some major cities were not in the data collection set because of data unsuitability, including New York, Chicago, and Washington, D.C., as well as all the cities in California, due to the distortions caused by Proposition 13.)

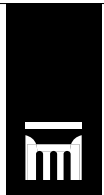
Secondly, Holden's study based on survey data and value estimates yields total values equal to about 40 percent of the Hartzell totals (retail is 37 percent, office is 39 percent, and industrial is 43 percent of the combined warehouse and manufacturing total of Hartzell), indicating that the proportion of property that institutions might consider owning is equal to about 40 percent of all commercial property (by value) in the U.S., an intuitively appealing figure. We extended the Holden study results to include institutional-grade multi-family properties, by making the somewhat arbitrary (though not reckless) assumption that the ratio of multifamily to total property in the institutional grade universe is the same as that in the total property universe.

Tax-based studies (32.3 percent) is a reasonable ratio to apply to the institutional-grade totals. The resulting total of \$458 billion is 41 percent of the estimated total universe in the Arthur Andersen study, similar to the ratios of the other property types to their estimated total universes.

Finally, we also added 40 percent of Miles' hotel value estimate to complete our institutional property universe.

We now are ready to consider how large the investable real estate universe is in relation to other institutional investment alternatives. Exhibit 36 lays out the figures proposed for consideration by Miles et al (1994) and Hartzell et al (1994), as well as a third set that we would propose, by using our modified Holden value for institutional real estate.

Exhibit 36						
Relative Size of Investment Universes: Three Views (\$ Billions)						
Data as of	Miles et al		Hartzell et al (Salomon Bros)		BB&K/ Holden	
	1993-1993		1989		1990-1993	
Corporate Debt	\$2,056		\$1,040		\$2,056	
U.S. Gov Securities	4,971		2,690		4,971	
Municipal Securities	1,226					
Mortgage-backed securities	1,301				1,301	
Com. mortgages	981				981	
Unsecuritized home mortgages	1,695					
Total U.S. Fixed Income	\$12,230	32.4%	\$3,730	36.4%	\$9,309	31.7%
Int'l Fixed Income	7,784	20.6			7,784	26.5
U.S. Equities (Wilshire 5000)	4,658	12.3	4,080	39.8	4,658	15.9
International Equities (MSCI)	4,875	12.9			4,875	16.6
Agriculture	805	2.1				
Venture						
Finance	1,200	3.2			1,200	4.1
Oil and Gas	80	0.2				
Timber	79	0.2				
Owner-occupied housing equity	\$3,804					
Industrial, office, retail	2,655		\$2,430		\$ 960	
Multifamily	1,122				458	
Hotel	212				84	
Less: com mortgages	(981)					
Less: corp.-owned property	(743)					
Less: REITs	(36)					
Total Real Estate	\$6,033	16.0%	\$2,430	23.7%	\$1,502	5.1%
Total Investable Universe	\$37,744	100%	\$10,240	100.0%	\$29,328	100%



By simplifying the universe down to the traditional domestic asset classes, Hartzell winds up on the high side, with 24 percent in real estate. Miles took a detailed, global approach, and placed real estate at 16 percent of the universe, compared to the earlier studies by Ibbotson et al (1984) at 34.6 percent and Brinson (1987) at 13 percent to 15 percent. This paper takes the more conservative approach of including all the global markets, but only counting the institutional-grade real estate. However, much as there has been movement away from the “nifty fifty” of the 1960s to the broader-based “Wilshire 5000” and various “small cap” allocations to stocks, we believe future real estate portfolios will embrace a broader array of property sizes, types and locations than the Holden definition of 1990, which was limited to only multi-tenant properties in the top 100 markets. Holden’s methodology resulted in including only 36 percent of Miles’ commercial property value. If one were to include 60 percent of Miles’ property universe, total investable institutional property would be \$2,393 billion, or 7.9 percent of our market basket, rather than the 5.1 percent of Exhibit 36.

Pension Funds’ Share of World Wealth

In reviewing the U.S. institutional asset mix for 1996 versus the conservatively determined BB&K/Holden universe described in the prior section, we see the following, as shown in Exhibit 37.

The 1996 pension fund mix definitely has moved closer to the benchmark universe than, say, in 1982, when there was 58.5 percent in cash and bonds and 36.6 percent in domestic equities and very little else (Exhibit 28). The movement out of cash and bonds, into international bonds, equities and venture capital has served to move the mix closer to the market basket.

The 1980s movement into real estate was cut short by the bear market of the early 1990s. However, the movement of funds into domestic equities has continued to push the pension asset mix farther away from the benchmark, encouraged, probably, by the strong returns and reduced volatility in that market in recent years.

Exhibit 37			
Institutional Asset Mix vs. The Universe			
	U.S. Pension Funds (1997 Money Market Directory)	Market Basket Universe (From Exhibit 36)	Universe Excluding Intern'l Bonds
Cash and domestic fixed income	37.0%	31.7%	43.1%
International Fixed Income	1.5	26.5	0.0
Domestic equities	48.8	15.9	21.6
International equities	8.5	16.6	22.6
Venture Capital	0.8	4.1	5.6
Other	0.7	0.0	0.0
Real Estate	2.7	5.1	6.9

The underweight positions in international bonds and stocks are understandable for domestic pension funds (and particularly so for bonds given the currency risk problem). In fact, if one removes international bonds altogether from the investable universe, the \$1.5 trillion in our conservative real estate definition becomes nearly 7.0 percent of the investable universe. The underweight commitment to venture capital also is understandable given the extremely illiquid nature of that market. To us, the question is: Why should pension funds triple-weight the domestic publicly traded equity universe, yet substantially underweight real estate equity? The returns from each market are comparable over the longer term, are based in dollars, and have a low correlation with each other. The liquidity concerns about real estate are being addressed by new controls that investors are requiring. If anything, given real estate’s possibilities for outperforming the benchmark as a result of information inefficiencies in the market and management’s ability to add value to properties, one could argue that public equities should be closer to the benchmark, and real estate should be overweighted.



Conclusion to Chapter 3

Modern U.S. pension funds have been broadening their asset base since the passage of ERISA in 1974. The once-high allocation to conservative cash and bonds has been reduced in favor of domestic equities and a number of newer asset classes.

However, the allocation to real estate, while never large, has fallen off in recent years due to poor performance in the recent boom–bust period. And, when compared to other industrialized countries, U.S. funds are at the low end of the range in their allocation to real estate.

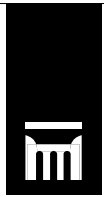
In developing a market-basket benchmark for asset allocation, two problems arise: which asset classes to include in the institutional universe; and, how to define and measure the real estate portion. Some would include as much of the global investment marketplace as possible, while others would focus on a more domestic-oriented mix. Studies to determine the size of the real estate universe have recently either been derived from property tax records or from professional market surveys. The result of these two issues leads to a real estate benchmark that could range from 5 percent of the investable universe to 24 percent or more.

Should real estate investors broaden their definition of institutional grade property (much as stock market investors moved from the “nifty fifty” to the Wilshire 5,000), then our 5.1 percent conservative estimate of the investable universe easily could become 7 percent to 8 percent. Further, if we reduced the oversized portion of 26.5 percent in international bonds to, say, 5 percent, the combined effect of broadening the definition of institutional real estate and reducing international bonds would result in real estate comprising 10 percent of the conventional investable universe.

The current pension fund invested allocation of 2.7 percent to real estate is at best 60 percent of the estimated market basket, and 10 percent at worst. Yet, the allocation to domestic equities is between 100 percent and 300 percent of the market basket, depending on the definitions used. Either pension funds are accurately forecasting that domestic equities will continue to outperform the other major asset classes, or they will spend some time with returns below those that they could have achieved by investing in a mix closer to the benchmark universe. In any case, we believe that real estate allocations definitely should be moved up to at least 5 percent to 10 percent of the total fund, in order to keep pace with the potentially high returns from this portion of the benchmark.



**CHAPTER 4:
IS “NOW” THE TIME TO
MOVE INTO REAL
ESTATE?**



We see at least eight arguments in support of the proposition that we will be in a very timely period for institutional investment in real estate over the next several years, at least. The arguments introduced here will be more fully explored later in this chapter.

- This is the perfect time in the long term cycle for real estate to take advantage of high returns without the fear of an imminent risky boom–bust period. We appear to be at the beginning of real estate’s next long cycle.
- The capital market discipline that exists for new real estate development is a result of the pain of the last boom–bust period, and will not soon be forgotten. As a result, the risk of future losses will likely remain low for some time.
- The capital markets are signaling that real estate yields are superior to those of domestic or international stocks or bonds. Capitalization rates in real estate are now in relatively favorable position versus equity earnings yields or bond interest yields.
- The supply/demand fundamentals in most space markets have greatly improved versus their dismal state in the early 1990s, thereby improving the near-term outlook for most markets.
- Current property prices are near to or below their replacement cost for most markets, indicating the threat of excessive new construction encouraged by high development profit margins is unlikely to occur until rents have risen above current levels.
- History shows that capital market returns tend to revert to their long term mean. This means that stock and bond markets will likely at some point enter a period of under-performance to compensate for the bull market years since 1982, and that real estate will recover to compensate for its recent period of underperformance.
- The best period for contrarian investing is when perceived risks are high. Only courageous capital will take advantage of the opportunities. Even today, several years into the real estate recovery, only

experienced investors realize that investment risk is now low.

- There is considerable pent-up demand for real estate investments, which will eventually flow into the market and close the gap in multiples versus the other capital markets.
- Although the days of real “bargain buys” in the market bottom are mostly over, there will continue to be sources of new opportunities, as the old closed-end funds are liquidated, the Japanese repair their balance sheets, etc.

Let us briefly examine each of these arguments.

Position in the Long Cycle: Near the Beginning for Real Estate

We are probably fifty years away from experiencing the kind of boom-bust pain that real estate went through in the last ten years¹. Summarizing again the long-cycle highlights of Chapter 1 and of Appendix A:

- Although the causes remain unclear, inflationary forces have peaked in the past every 50–60 years (Exhibit A-2). Given the continued fear of inflation by the capital markets and the Fed’s steady hand on the money supply, we expect the next inflation peak to perhaps be that far away again.
- These inflationary forces boost real estate incomes (Exhibit 3) and encourage excessive, destabilizing flows of capital into real estate development (Exhibit 4), resulting in a major boom-bust period for real estate. Investment opportunities are heightened in the years following such periods.
- Farmland prices, due to their sensitivity to commodity price levels, have historically been the first property type to decline following the peak in inflation — immediately following the peak in inflation, and years ahead of the other property types. (See Exhibit A-1.) As such, farmland prices

¹ *It is also possible that the cycle of “pain” timing will vary by property type. The boom–bust of the ‘90s was felt most heavily in the office sector. The retail sector, with its rapid build-up of big box retailing, outlet malls, etc., may only be just now having its boom–bust.*



have served as an informal early warning signal of an impending boom–bust for the general property markets. Currently, farmland prices are again on the rise.

- Each long cycle appears to be composed of three, 18-year Wenzlick cycles, each of which can end in a brief period of instability and reduced returns for real estate (Exhibits A-4 and A-5).

Assuming these cycle lengths repeat, with the last real estate boom–bust period peaking during the years 1985–90, we will not likely see the next 18-year cycle correction until after 2003–2008. Patient investors with capital to place in the middle of the next decade might prudently wait until the cycle correction presents a new wave of buying opportunities, but for the next 10 years, real estate should continue to offer outstanding return opportunities without fear of significant risks. (Obviously, investors who are sensitive to the supply/demand variations by property type and by geography can improve on the general risk/return trends.)

This also means that the next major boom–bust period for real estate is probably not going to occur until 2040–2050, when our grandchildren will have no personal experience of the 1980s, and will think of the older generations as excessively conservative, much as the players in the '80s thought of the older generation's cautiousness that stemmed from their 1930s experience as irrelevant. If these major cycles persist for those of us in the real estate industry today, the environment for real estate investing will likely be more rewarding than risky for the balance of our careers.

Legacy of the Boom–Bust Peak: Capital Markets Discipline

In the capital boom of the 1980s, the pool of capital seeking new projects was so great, it was not uncommon for developers to cash out their original equity via mortgage financing. Bank and mortgage company real estate loans grew from \$400 billion in the aggregate in the early 1980s, to \$1,500 billion by the late 1980s. Today, it is back down to the \$400 billion level. The typical commercial loan today runs from 35 percent of property value to 75 percent, with 75 percent being the upper limit on loan-to-value allowed by most lenders.

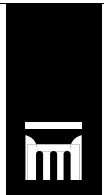
If anything, the lack of discipline was most apparent in the stock market in 1995 and 1996. According to Roulac (1996), 1980 saw \$2 billion committed to stock market mutual funds, less than the \$3 billion added to real estate securities. In 1995, real estate securities volume was much higher, fueled by the new market for commercial mortgage backed securities (CMBS), totaling some \$25 billion in new capital. Yet, this figure was dwarfed by the \$200 billion added to mutual funds in the same year. Further, rating agencies set the tone for CMBS lending discipline in the '90s, setting and reviewing the underwriting standards for loans, just as banking regulators no longer allow the excesses of the banks and S&Ls of the 1980s. Even as investors are becoming somewhat more comfortable with moving down the credit scale, still only 5 percent to 7 percent of new CMBS offerings were rated below “AA” in the first quarter of 1996, indicating that a high level of market discipline remains in place. (Petee, 1996.)

Real Estate Yields: Back to the Top of the Heap

Historically, average real estate capitalization rates (“cap rate,” which is net operating income divided by market value) run 200 to 500 basis points above 10-year Treasury yields and they range up to 400 basis points on either side of stock market earnings yields (earnings per share divided by market price). At the end of February 1997, this is where they stood:

- Average Real Estate Capitalization Rate (per National Real Estate Index)
9.25 percent
- 10-year U.S. Treasury Bond Yield
6.5 percent
- S&P 500 Index Earnings Yield
5.1 percent

The concept of an “average cap rate” is not 100 percent verifiable from available statistics, as it does vary by property type (8.0 percent for CBD offices, 8.9 percent for apartments, to 9.6 percent for R&D property and strip retail), by metro area (with its own unique supply/demand forces), and from property to property for reasons of quality, age, location, etc. Nonetheless, an “average cap rate” concept is highly useful in asset allocation work, and Bailard, Biehl & Kaiser (BB&K) has tracked the trend of cap rates since it began



investing client accounts into equity real estate in 1971. While the history of cap rates is difficult to find on any consistent basis, BB&K has combined data from the American Council of Life Insurers (for the 1950s and '60s), Questor Associates (an early Roulac firm for the late '60s and early '70s), BB&K's own experience into the early 1980s, and the National Real Estate Index since 1985, and found reasonable comparability in linking one data set to another. The historic average cap rate is plotted in Exhibit 38-A.

Exhibit 38-A

**Average Investment Property Cap Rates:
1951-1997**

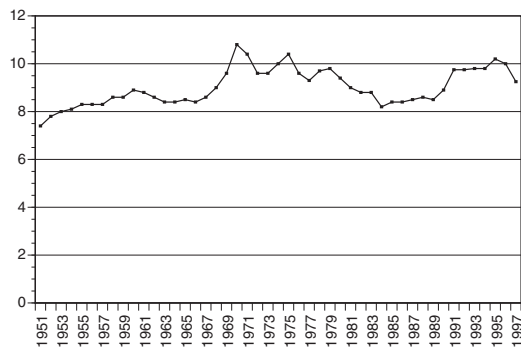
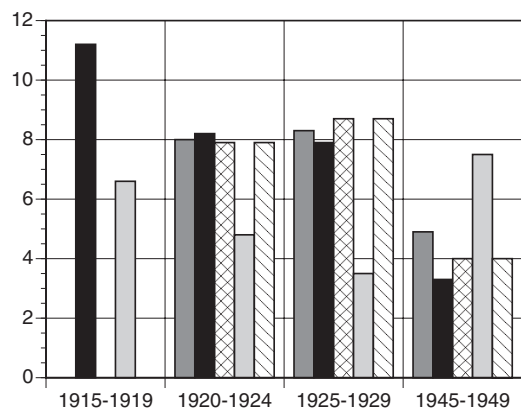


Exhibit 38-B

**Cap Rates for Various Property Types:
1915-1949**



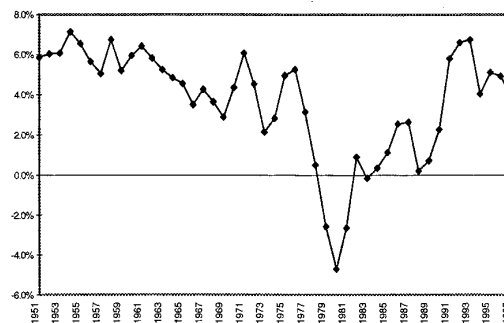
Source: Grebler, *Experience in Urban Real Estate Investment*, Columbia University Press, NY, 1955

For this 36-year period, real estate cap rates were at high levels (above 9.5 percent) only one-third of the time. For earlier time periods, we have only smaller-sample studies of cap rates. In Exhibit 38-B, a detailed study of New York property by Leo Grebler in 1955 indicated that actual transaction cap rates for various property types ran around 8 percent during the 1920s boom, and around 4 percent in the rent-controlled late 1940s. Even earlier work by Homer Hoyt (1933) found Chicago central-district cap rates ranged between 4 percent and 8 percent from 1860 through 1933. From this longer-term perspective, we would argue that today's cap rates of 8 percent to 10 percent are more on the high side of normal, than they are an indication of nearing the end of the cycle.

In Exhibits 39 through 41, we have plotted cap rates minus T-bills, Bond yields and stock yields.

Exhibit 39

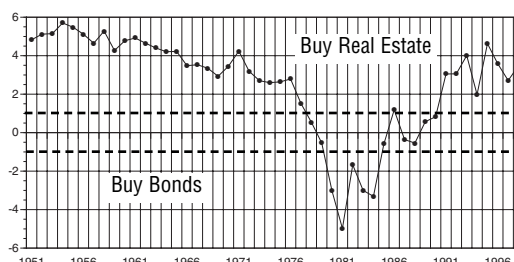
**NET CAP RATES (Cap Rates - T-Bill Rates)
1951-Jan 1997, 90-Day T-Bill**



Source: Questor Associates, NREI

Exhibit 40

**NET CAP RATES (Cap Rates - Bond Rates)
1951-Jan 1997, 10-Year U.S. Treasury Bonds**

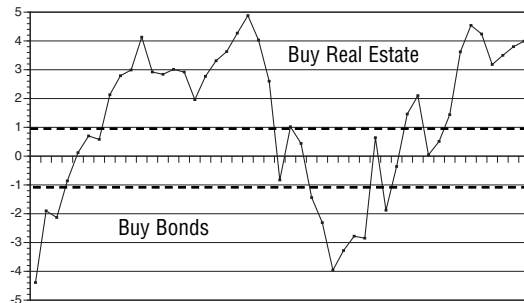


Source: Questor Associates, NREI



Exhibit 41

**NET CAP RATES - STOCK E/Ps
1951-Jan. 1997, S&P 500 E/Ps**



Source: Questor Associates, NREI

Exhibit 40, cap rates versus bond yields, indicates that investors should have preferred bonds to real estate from 1980 through 1990. Bonds offered equal or superior returns to real estate, with less risk. (Even in the “boom” years for real estate, 1980–1985, the total return for long-term Treasury bonds was 13.5 percent per year, equaling NCREIF returns at 13.4 percent!) Yet, investors responded as a herd to the pursuit of the “price appreciation/inflation hedge” promise of the times.² Real estate did not move back into relative attractiveness until around 1992, as prices fell (moving cap rates up) and bond yields gradually declined from the inflation-fear levels of the early 1980s. Real estate continues to offer more attractive yields than bonds, yet pension funds continue to hold more than 10 times as much in fixed income instruments than they do in real estate.

The historic picture of real estate yields versus stock yields is contained in Exhibit 41. Stocks were the better value from 1950 through 1958, and indeed the S&P 500 returned an astounding 35.6 percent compounded annually. Then, this chart would have favored real estate during the 1960s bull market, not an ostensibly good move, until one looks back at the data in Chapter 1 from the Kelleher study, which calculated that a national, diversified real estate portfolio would have returned 13.2 percent

²Acting contrary to the popular wisdom, BB&K responded to these changing circumstances, anticipating the impending long-cycle boom-bust period, by gradually reducing real estate allocations in client portfolios from above-normal positions in 1971 through 1978, to below-normal levels by 1982, where they remained until 1989. Conversely, bonds were moved to an above-normal allocation in 1982 and remained in that area throughout the decade.

per annum from 1961–73, versus only 7.4 percent for the S&P 500. (In 1974, the stock market fell another 26 percent.) By 1977, the chart would have had portfolios favoring stocks over real estate (a little early for the bull market in stocks), and, more importantly, kept one from preferring real estate until the relationship improved dramatically in 1991. While the picture of real estate versus stocks is not as clear as it is for bonds, it certainly does do the job of keeping investors away from the dangers of the recent boom-bust period and suggests that real estate is currently attractive today.

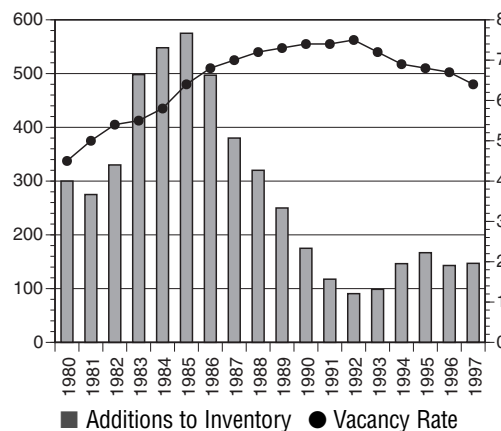
In conclusion, then, from a fundamental value point of view (i.e., relative current yield), not since the 1960s has there been as good a time to prefer real estate investments over either domestic stocks or bonds as there is today.

Real Estate Markets Have Recovered from the Excesses of the 1980s

Although this topic is regularly updated in various publications and investment reports, it is useful to highlight the fact that oversupply problems are diminishing in almost all property markets, with the exception of retail. Exhibits 42 to 45 plot the trend of supply (new construction) versus the supply/demand balance (occupancy rate) on a national average basis for apartments, downtown offices, suburban offices, industrial property, retail (which includes everything from neighborhood centers to malls to “big box” retailers, etc.).

Exhibit 42

Apartments: New Construction vs. Vacancy Rates: 1980–1997



Source: REAPS 58 Market Forecasts, F.W. Dodge, Third Quarter 1996

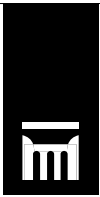
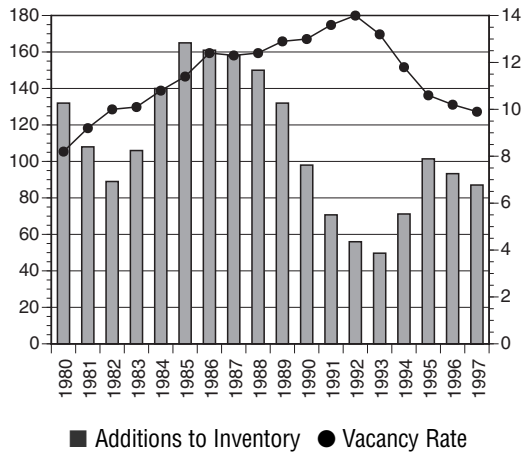


Exhibit 43

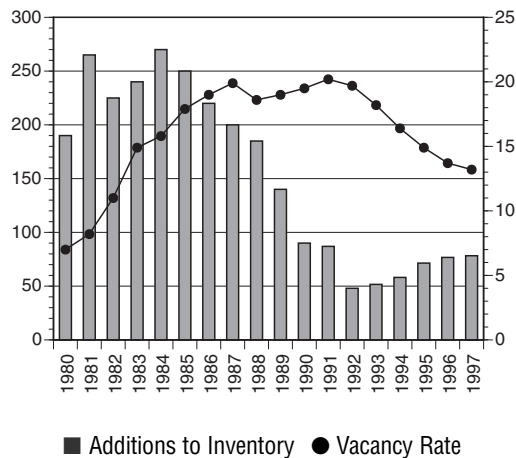
Industrial/Warehouse: New Construction vs. Vacancy Rates: 1980-1997



Source: REAPS 58 Market Forecasts, F.W. Dodge, Third Quarter 1996

Exhibit 44

Office Market: New Construction vs. Vacancy Rates: 1980-1997



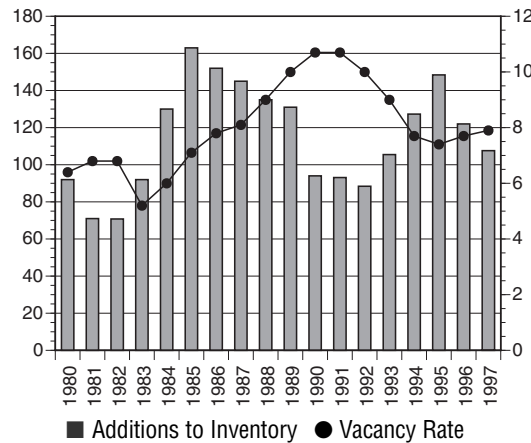
Source: REAPS 58 Market Forecasts, F.W. Dodge, Third Quarter 1996

Although a serious recession would put some pressure on property markets, one can see that they generally are in much better shape than they were going into the 1990 recession. Operating incomes should hold up much better, and prices should be more stable, given the declines already suffered.

Today's property markets clearly offer better fundamentals than they did in 1990, prior to the last recession, particularly in the hardest hit office sectors.

Exhibit 45

Retail Market: New Construction vs. Vacancy Rates: 1980-1997



Source: REAPS 58 Market Forecasts, F.W. Dodge, Third Quarter 1996

Market Prices Look Good Relative to Replacement Costs

Whenever property can be bought for less than it would cost to build it new, two things are in the investor's favor:

- Market conditions are likely to improve and thereby increase rental rates before net income levels rise to a high enough level to economically justify new construction.
- The risk of an overbuilding glut is not in the near future.

Exhibit 46 shows the average purchase price versus replacement cost for recent acquisitions by investors surveyed by the CB Commercial National Investor Survey, First Quarter 1996, as well as the level of 1995 construction versus the boom year of 1985, as calculated by RREEF Research (1996) from F.W. Dodge and other sources. While it may seem surprising that there is any new construction in the still depressed office market, these are markets where the demand for new space has outstripped supply, such as in Silicon Valley near San Francisco.

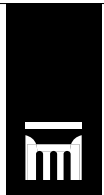


Exhibit 46

Low Property Prices Inhibit New Development

	Average Purchase Price as a % of Average Replacement Cost	1995 Construction Volume as a % of 1985 Construction Volume
Apartments	83%	32%
Warehouse/distribution	89%	
Industrial R&D	82%	Total industrial 75%
Suburban offices	68%	
Urban offices	66%	Total offices 32%
Regional malls	87%	
Power Centers	92%	Total retail 95%
Neighborhood Centers	81%	
Strip Retail Centers	69%	

Source: CB Commercial National Investor Survey, First Quarter 1996

In conclusion, from Exhibit 46, it appears that most national property markets (which will, of course, vary widely from one metro area to another) are reasonably priced versus replacement cost. This is especially true for the office markets, where there probably is considerable room for improvement in operating income levels. However, as retailers continue to focus more on market share than on profits and to invent new concepts such as “Power Centers” (anchored by “Big Box” retailers like Wal-Mart) and “Factory Outlet Centers,” this sector appears to present some risk (which eventually will present new opportunities for investment).

“Reversion to the Mean”: All Markets Eventually Readjust

At a CFA conference in Chicago in September 1994, Barton Biggs (1995) offered: “Before investors write off commercial real estate for its recent low returns, they should remember one of the most powerful forces in investing: gravitation (or reversion) to the mean — that is, the tendency of asset returns to revert to their historical averages.” No asset class can outperform every other class by a wide margin indefinitely, or else that class would eventually come to represent nearly 100 percent of world wealth, an unreasonable proposition when carried to this extreme.

For example, while the long-term annual compound return for stocks on the NYSE is 10.5 percent (per the Ibbotson Associates SBBI 1996 Yearbook data for 1926–1995), it will go through prolonged periods of underperformance (as it did 1970–81, with annual returns of 6.9 percent) to make up for prolonged periods of overperformance (1950–68, at 14.7 percent per year). The long-term trend is plotted in Exhibit 47, where the logarithmic scale enables us to draw a straight line showing the long-term geometric mean return. Since 1982, the market again has been in a prolonged period of above-average performance (16.3 percent per year).

Exhibit 47

Cumulative Returns Large Cap Stocks 1926–1996 (Logarithmic)

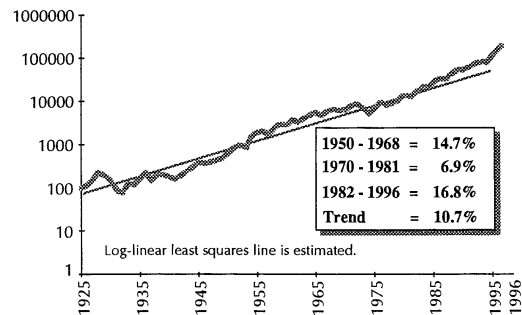
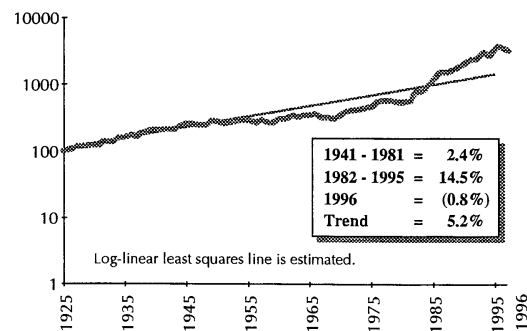


Exhibit 48 plots the long-term cumulative return for long-term bonds in the same manner, with prolonged underperformance prior to 1982 (1941–’81 at 2.4 percent per year) being compensated for by the high returns since then (1982–’95 at 14.5 percent annually).

Exhibit 48

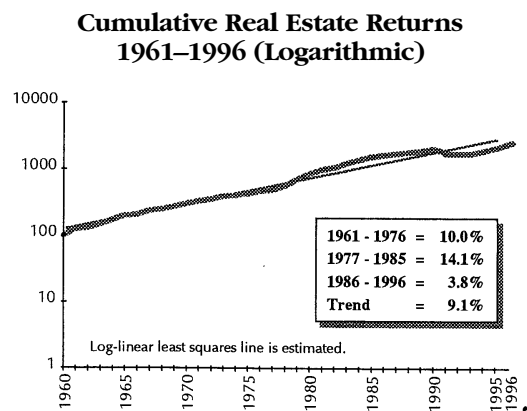
Cumulative Returns Long-Term Bonds 1926–1996 (Logarithmic)





Similarly, Exhibit 49 plots the long term performance of equity real estate, although here we must splice together several data series to obtain a long-term view, because NCREIF does not exist prior to 1978. For the period 1971–77, we selected the somewhat conservative figures compiled by the Frank Russell Company for commingled equity funds (reported in JMB, 1987), and for the period 1961 through 1970, we used the Kelleher (1976) study data (thereby excluding the extraordinarily high returns Kelleher reported for 1971–73). From all the data in Exhibits 2, 5 and Appendix B, it appears that the best long-term (75-year) fit for equity real estate returns is about 11 percent per annum, and this line is added as an estimate of the “mean reversion” line for real estate. The overperformance of the 1980s boom has been undone by the 1990s correction. Real estate now is ready for average healthy returns again.

Exhibit 49



Another common way to look at “mean reversion” is to plot two asset returns netted against each other. In Figures 50 and 51, we have done this for real estate versus bonds and for real estate versus stocks. Again, the picture appears poised for real estate to outperform the other asset classes.

As Biggs concludes in his 1994 presentation, “The next bull cycle for real estate will not last a couple of years; it will be a 10-year cycle. The biggest mistake people will make will be to get out too soon.” From our view of the data, the recovery of real estate has only just begun.

Exhibit 50

**Real Estate - Long-Term Bonds
1961–1995 “Reversion to Mean”**

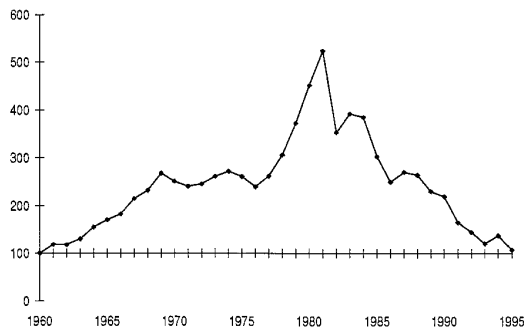
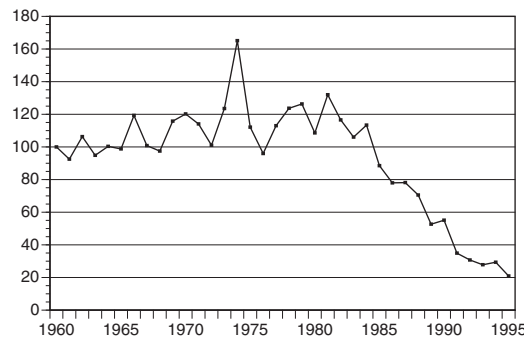


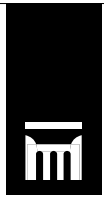
Exhibit 51

**Real Estate - Common Stocks
1961–1995 “Reversion to Mean”**



**Bargains for Courageous Capital
When Perceived Risks are High**

Back in Chapter 2, when we were discussing how real estate risk varies over time, we made a point the reader might have overlooked at the time: “As any good contrarian will tell you, there are always better values when the perceived risk is high than when it is low!” Referring again to Exhibit 21, the five-year trailing volatility of return for real estate (using the unsmoothed appraisal approach) is at an all-time high for NCREIF. This is why some institutions are abandoning the asset class. For others, this means that it is the time to buy values that may not be available again for years to come. Look again at Exhibit 21, and note how stock market volatility shot up in the aftermath of October 1987. Again, courageous capital took advantage of the values at the



time, and have enjoyed nearly a decade of bull markets since then.

Being contrarian is not being ornery about risk; it's about being able to see value in new investments when everyone else is wringing their hands about the money they just lost in similar investments.

Pent-up Investor Demand: A Bonus for Early Investors

Eventually, real estate likely will occupy a larger share of the pension fund asset mix. As returns continue to improve, it is not unreasonable to expect real estate's share to approach that of the benchmark universe. While the range is arguably from 5 percent to 25 percent of the investable institutional universe, we believe that 7 percent to 10 percent is a likely target, as we discussed in the previous chapter. With pension holdings of public equities at double or triple the weight of the benchmark universe, it is not out of the question for real estate to rise above its benchmark weight, particularly if stocks endure some agonizing bear market years, while real estate equity becomes the top-performing asset class for a time. In this scenario, 7 percent becomes a minimum target for real estate's share.

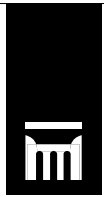
As pension funds pass the \$4 trillion mark in the next decade, 7 percent equals \$280 billion, some \$172 billion above the year-end 1995, estimated pension holdings of real estate equity listed in the Spring 1996 issue of *Real Estate Capital Markets Report*. The same source estimated new commitments by pensions in 1995 were \$13 billion. Combined with liquidations and value changes, the aggregate pension investment increased \$10 billion to \$108 billion. Should pension investors desire to attain a 7 percent allocation target by 10 years from now, they will have to step up their level of net acquisition from the previous year's \$10 billion level to something more like \$15 billion. Early buyers are likely to see better going-in yields than are later buyers, should such a level of new investment occur.

A "wild card" in the real estate demand picture is the potential from the rapidly growing 401(k) plans. In an article by Rodger Smith (1996), "Can Real Estate Survive the 401(k) Wave?," he questions how large the market capitalization of REITs might become

if more plans begin offering real estate as an alternative. With REITs now at nearly \$100 billion and growing, REIT funds are becoming increasingly available as a viable option. At year-end 1995, only 2 percent of the \$470 billion in 401(k) plans offered real estate, but it is sure to grow. The 1995 capital flow of \$12 billion to equity REITs (from all sources) could look small in future years as 401(k)s join in supplying new capital to this public sector of the real estate industry.

The other major source of real estate equity capital is foreign investors. A recent study by Holsapple et al (1996) argued that such investment is the result of recycling the current account deficits of the United States. With real estate being an attractive vehicle for placing dollars in the 1980s, foreign equity real estate investment rose from \$2.4 billion in 1980 to \$36 billion at its 1989 peak. The largest single source was from the Japanese, and with the need to rebuild their capital structure at home, they are now disinvesting. As a result, net foreign capital flows into real estate in 1995 amounted to only \$0.17 billion. With the United States suffering from chronic trade deficits, it is likely, once real estate again becomes known as an attractive asset, that foreign buyers could add to the pressure for property investment, adding to the upward push on prices. This is in addition to the continued use of U.S. investments as a "safe haven" for foreign investors as long as the United States maintains its status as the leading world power. Already in 1996, a survey by the Association of Foreign Investors in Real Estate indicated that 81 percent favored investing in the United States over Europe and 77 percent favored investing in the United States over Asia, up from 30 percent levels in 1992.

Real estate values already have been recovering for several years, although it is still an underheld asset class. As real estate earns its way back into investor favor, it is not inconceivable that the yield gap between real estate and bonds or stocks will narrow. Today's 9-plus percent cap rates will look like bargains compared to the 8 percent levels that are possible tomorrow.³ Investors who get in ahead of the potentially growing sources of real estate capital described above, will not only enjoy the returns from income and growth due to improving space markets, but also could enjoy the bonus returns from shrinking cap rates.



Good Opportunities Still Will Become Available, For A While

Opportunistic real estate investors now are bemoaning the smaller amount of “low-hanging fruit” to be picked in the marketplace. While it is true that most of the RTC sales are completed, and the financially distressed sellers have been relieved of their situations, it still will probably be a few years before there begins to be serious pressure to lower cap rates. What are the sources of property for new investment? We see at least seven important ones:

- Japanese disinvestment
- Liquidation of “closed-end” real estate funds
- “Open-end” fund sales to redeem investor queue
- Liquidation of old limited partnerships
- Insurance company selling to meet risk-based capital requirements
- Diversification into new markets
- New development

According to the E&Y Kenneth Leventhal Real Estate Group’s 1995–’96 report on Japanese Investment in U.S. Real Estate, Japanese disinvestment grew from \$3.4 billion in 1993 to \$8.9 billion in 1995. Yet, over the next five years, they are expected to sell an additional \$40 billion to \$50 billion of real estate assets. The *Real Estate Capital Markets Report* claims this sell-off is four times that of the U.S. savings and loan crisis.

As an alternative response to plan sponsors’ early concerns about liquidity, real estate advisors offered commingled real estate funds that had a finite life, or a scheduled liquidation date. According to the Institutional Property Clearinghouse, there are some \$22 billion dollars worth of such funds scheduled

³Arbour (1993) believes that 8 percent is a normal historic cap rate for real estate, citing such varied sources as Hoyt (1933) where Chicago cap rates were at 8 percent or below from 1840 to 1933, and a 1730 English real estate handbook that used an 8 percent “capitalized value” rate. Occasionally, rates were found as high as 10 percent.

to terminate by 2005. Some \$7 billion was in arrears of scheduled termination in 1995–96. This “deadline” pressure to sell comes on top of a backlog of properties that institutions have been wanting to sell for various reasons, but not until there were better market conditions. Even today, as some pension funds are beginning to increase their allocation to real estate, others are abandoning the sector, or at least getting rid of what they view as problem properties or problem managers. The waiting list for institutional investors wanting to redeem out of “open-end” funds also is putting pressure on some advisers to sell property. They have been waiting for better market conditions to sell, but the amount and timing of such sales is an unknown. Reportedly, the waiting list to redeem at one large fund is around \$1 billion. As a result of all such pressures, total sales by pension funds were more than \$6 billion in 1995, up from \$2.3 billion in 1993. In short, the supply of institutional-grade property from institutional owners is far from drying up any time soon.

The amount of property still to come on the market from the limited partnership binge of the 1970s and early 1980s is unknown, but probably not insignificant. In many cases, the capital-short nature of these partnerships means that there probably will be value-added opportunities in acquiring such properties.

Insurance companies have been extremely active sellers of real estate over the past two to three years as they moved to reallocate their capital reserve portfolios in light of recent National Association of Insurance Companies risk-based guidelines. How much farther this selling has to go is uncertain (specific data is unavailable), but the current selling trend is certainly helpful for new investors.

Another growing source of investment opportunities lies in broadening the definition of institutional-grade locations. Thirty-eight percent of NCREIF properties are located in only 10 U.S. counties (down only slightly from the 41 percent figure of 1985). Sixty-two percent of the properties are in the top 30 counties, out of 3,138 total U.S. counties. Again, the instinct has been to follow the “safer bets” by focusing investment in larger metropolitan areas, where there is a broader employment base and a deeper investment market. Recently, advisers have been uncovering



some unusually high return opportunities in such previously overlooked places as Memphis, Omaha and Puerto Rico. Substantial market inefficiencies still remain outside the traditional institutional market boundaries. (Even inside the traditional boundaries, there always will be some market inefficiencies due to the uniqueness of each property and the special needs of each buyer and seller.)

New development continues to create property investment opportunities. In the 1980s, it was not uncommon for developers to finance nearly 100 percent (or more) of new projects, so institutional investors were typically not brought in at cost, but rather at the leased-up, full market value. Today's lenders are much more conservative, requiring real equity ahead of the development loan, thus giving institutional investors a chance to participate in development returns and risk, an arena not formerly available.

In 1995, even at the now-reduced level of new construction, 270,000 multi-family units were built, along with 179 million square feet of Industrial space, 112 million of office, and 260 million of retail, based on new contract awards. Based on conservative cost estimates, this annual growth of new property is some \$80 billion in value, which will require some \$15 billion to \$30 billion in new equity, depending on the leverage used by development equity sources. (Increasingly, institutions are investing at the development stage, where "pro forma" cap rates can run 100 to 200 basis points higher than they would for existing properties. After the property is leased, the risk is reduced and cap rates move to market, providing an extra appreciation return in exchange for taking the development risk.)

Conclusion to Chapter 4

The next few years will be a very timely period for institutions to expand (or begin) their real estate portfolios. Owing to the currently "out of favor" status of real estate, opportunities are available at prices (cap rates) as good as we've seen in several decades (except for the brief "bargain buy" period in the early

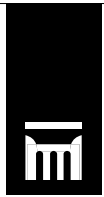
1990s). Further, the risk characteristics of real estate are likely to be lower than they were in the risky 1980s, at least for the foreseeable future.

In summary, we see the following factors contributing to a high probability of above-average returns on investments made in the next few years:

- Higher going-in real yields (cap rates less T-bond rates) than we have seen since the early 1970s.
- As capital markets realign to their long-term mean returns, real estate returns will remain solid or improve and stock and bond returns will diminish.
- There still are motivated sellers offering property — closed end funds, Japanese, owners of property in "non-core" markets and developers seeking equity partners.
- As real estate comes back into favor, the pent-up demand for property likely will increase capital flows and reduce cap rates (bid up prices), resulting in a bonus appreciation return for holders of real estate.
- Not only should returns be high, but the risks of property ownership should be lower than was experienced in the past decade. This is because:
 - The experience of the past decade has left the market participants with renewed discipline to prevent the recurrence of capital market excesses.
 - The rhythm of inflation-driven boom-bust periods likely will put the next period of real estate volatility somewhere past the year 2040.
 - The space markets are in much better balance, for the most part, than they were in the mid-1980s,
 - With property prices below their replacement cost, there is little fear of excessive development, at least until operating incomes are higher for existing properties.



**CHAPTER 5:
CONCLUSIONS ON
ERRONEOUS WISDOM
OF THE '90s (... AND
WHAT TO DO NEXT?)**



A lot of material has been covered in this paper — much of it fairly technical, or derived from technically oriented work. What framework can we offer to portray these ideas in an easy-to-remember fashion? Perhaps they are best framed as counterarguments to the currently prevailing institutional views of real estate as a result of the unhappy experience of the past decade.

Erroneous Wisdom of the '90s:

Erroneous Wisdom of the '90s:

#1 - “Real Estate Returns Are Lower Than Were Promised in the '80s”

It is true — investors were disappointed. However, the fact is that for most of the past century, real estate has offered returns comparable to or better than common stocks. The negative return years of the early '90s had only one other precedent: the late 1920s and early '30s — another boom–bust period resulting from an inflation-induced, capital markets frenzy for new construction. Otherwise, real estate offers consistent returns in the range of 5 percent to 15 percent per year, with the bulk of the data falling in the 10 percent to 12 percent range. Over the long run, stocks do no better in terms of total return. Bonds, over the long run, have generally poorer returns than real estate.

Erroneous Wisdom of the '90s:

#2 - “The NCREIF Property Index is Representative of Market Returns”

As institutional investors have become accustomed to passive market benchmark investing, it is an easy mistake to think of the NCREIF Property Index as some measure of performance of institutional-grade real estate — a sort of S&P 500 of real estate. However, whereas the S&P 500 stocks were chosen specifically because they were judged to reflect the broad market, the NCREIF experience is more akin to the performance of the “Nifty Fifty” of the late '60s — they were chosen by an investor universe that felt safe doing what everyone else did. Exhibit 52 highlights the differences between the NCREIF portfolio mix and the broader real estate universe.

In the world of common stocks, a portfolio mix this different from the benchmark universe would be viewed as very aggressive — either the “bets” work for you or against you, but you certainly couldn't claim their performance to be that of market index returns. In this case, the

bets worked against the institutional players, with the market-weight index outperforming NCREIF by 90 basis points per year.

Exhibit 52			
	NPI Mix		Estimated Investable Universe¹
	1985	1996	
Office	52%	32%	29%
Retail	27	35	32.2
Warehouse	16	12	6.4
Apartments	0 ²	15	32.3
Other	5	6	N.A.
Total	100%	100%	100.0%
1985–1986			
Ann.Return	5.0%		5.9%

¹Source: Arthur Andersen Real Estate Services Group, 1993

²Included in Other

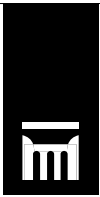
Finally, it is unclear whether the right players, the right fee structure, the right portfolio management strategy, or the right management structure was in place during this historical period, in order to say that NCREIF returns achieved their full potential or were even competitive with general market returns. All of these factors, handled differently, could have served to significantly improve the returns actually experienced by pension investors.

Erroneous Wisdom of the '90s:

#3 - “Real Estate is Too Risky For Institutional Investors”

Real estate does indeed feel risky during a boom–bust period. Stocks feel risky in a bear market. But the reality was discussed in Chapter 2. In summary,

- The volatility of returns for real estate may be comparable to stocks, or a little lower, but that's the worst you can say.
- Downside risk in real estate has been far superior to that of either stocks or bonds in this decade.
- Liquidity risk can be effectively dealt with through improved ownership structures and investor governance provisions. With separate accounts, investors are free to sell property at their discretion. With private REITs, investors can sell their shares or vote to liquidate their portfolios.



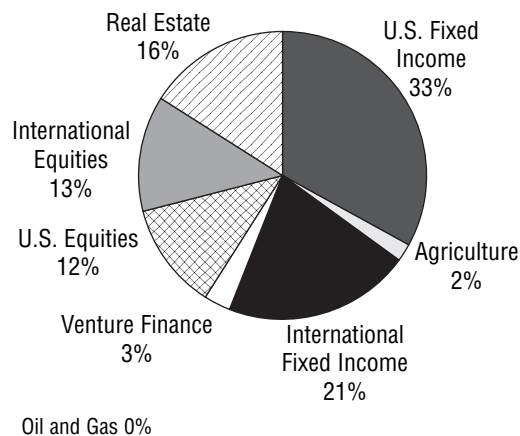
Erroneous Wisdom of the '90s:

#4 - "Real Estate is Just One of Several 'Alternative Assets,' Not a Major Asset Class"

A number of institutions have decided to include real estate with other minor asset group such as timberland and venture capital. Miles et al (1994) performed what is to date the most comprehensive measurement of the investable capital markets universe, and concluded that U.S. real estate comprised 16.0 percent of the total, exceeded only by the domestic and international fixed income sectors. Domestic and international equities represented 12 percent to 13 percent each. The true "alternative assets" in the universe were agriculture (2.1 percent), venture finance (3.2 percent), oil and gas (0.2 percent), and timber (0.2 percent). By these measures, real estate is solidly in the "big five" asset classes, not an alternative.

Exhibit 53

Relative Size of Investable Capital Markets



Source: M. Miles, J. Roberts, D. Machi, and R. Hopkins, "Sizing the Investment Markets: A Look at the Major Components of Public and Private Markets," *Real Estate Finance*, Spring 1994.

Foreign institutions for years have viewed real estate as a major asset class, with many major countries allocating significantly more to property than is currently in vogue in the United States.

An asset that combines the high-income component of bonds with the appreciation potential of equity certainly merits inclusion as an asset class along with bonds and equities.

Erroneous Wisdom of the '90s:

#5 - "All the Good Deals Have Already Been Bought"

True, most of the once-in-a-lifetime bargains of the early '90s have pretty much all been cleared from the market. (There always will be unusually good opportunities that will come along at any point in the cycle due to the inefficiencies of the real estate markets.) The only comparable period of opportunity was in the depths of the 1930s depression. It's also true that the perceived risks are so high in such market bottoms that it probably would be considered imprudent for fiduciary investors to commit more than a small portion of their funds to such opportunistic and risky "deals."

Yet, quality properties are being bought today at cap rates that represent a comfortable historic premium of 300 basis points over intermediate Treasuries. And they likely will continue to be available for several more years as a result of:

- \$22 billion of closed-end real estate funds that need to be liquidated.
- \$40-plus billion of holdings by Japanese investors that need to be sold to raise capital to repair balance sheets at home.
- \$15-plus billion annually of new projects where developers need equity partners to fill the capital gap created by more stringent debt underwriting.
- The additional possibilities of looking for properties beyond the core group of 30 favorite counties for institutional real estate.
- An unknown but likely still significant amount of property held by old limited partnerships that eventually will hit the market.

Besides, once "the erroneous wisdom of the '90s" fades away, there is considerable potential buying power from pensions and 401(k)s (via REIT mutual funds) that could serve to boost prices (reduce cap rates) on properties purchased before the wave of pent-up capital hits the market.

"OK, OK, I've Seen the Light. Now What Do I Do?"

This paper does not intend to seriously probe the issues of "how" or "how much" real estate is right for institutions. That subject is enough



to occupy one or two more papers. But we do feel an obligation to send potential investors off on their mission with a general set of guideposts.

In determining “how much” to allocate to real estate, these points should be kept in mind:

- Frame the issue in terms of the objectives (return, risk) and needs (cash flows, liability matching diversification, etc.) of your fund.
- Be forward-thinking in terms of forecast returns and risk (volatility), rather than allowing your decision to be overly tainted by the unusual once-every-60-years experience of the past decade.
- Seek seasoned real estate professionals to help with the process if you’re not comfortable with your in-house expertise.

Finally, do not be afraid to question whatever technical asset-allocation process you use, and remember to apply human judgment. Robert Haugen’s book, *The New Finance* (1996), illustrates the need for judgment in bursting apart some of the most cherished tenets of modern portfolio theory, by finding that low-volatility strategies may have higher returns than high-risk (high-volatility) approaches!

Once you’ve decided “how much,” there are a few things we recommend you keep in mind as you go about implementing the decision.

■ **Manager Selection:**

- Allow up to several years to go through the process of selecting advisers and building a quality portfolio, particularly if a large amount of capital is used to acquire a separately owned portfolio. Smaller sums may be able to achieve quicker placement by buying a share of an existing portfolio.
- Assess how managers dealt with the recent difficult period, and what they have learned from the experience.

■ **Product/Vehicle Selection:**

- Consider your options, be they public or private, equity or debt.
- For large plans (\$500 million or more to invest in real estate), maintain control of your destiny with the use of separate accounts.

- For small- and medium-sized plans, consider vehicles which provide potential avenues for control and liquidity, such as private REITs and commingled funds that can be traded among institutions.

- Reduce the short-term stock market risk on your portfolio by limiting use of publicly traded REITs.

■ **Strategy Development:**

- Control risk by diversifying as much as possible, focusing primarily on institutional-grade property.
- Give serious consideration to improving your return potential by employing some combination of a manager-of-managers, active portfolio management to capture short-term cycle effects, and active value-added strategies for redeveloping or repositioning properties that are not quite “core” grade institutional properties at the time of acquisition.

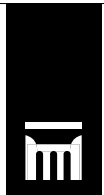
Your New Future

If your fund primarily has invested in the traditional stock/bond/cash mix of assets, there undoubtedly have been times when the threat of rising interest rates offered a choice between 1) watching your stocks and bonds decline, while you were holding low return, but safe, cash equivalents, or 2) being wrong as the markets continued to go higher and you were stuck with the portion in low-yield cash. In recent years, the high returns and low volatility of the stock market have made such a choice appear less urgent.

But there is an alternative to taking such risk — diversification into real estate. Here, your fund can enjoy high returns, but the risks have a very low (even negative) correlation with the stock and bond markets. In fact, given the concept of the 50- to 60-year cycle of real estate, we are many years away from the next serious downturn in this asset class. In effect, diversification into real estate offers the prospect of maintaining your fund’s chances for achieving high returns, while smoothing out the risky volatility — a pleasant prospect indeed. And now is a good time to plan that investment decision.

A large, light gray background graphic of a classical building facade with four columns and a pediment, centered on the page. The text is overlaid on this graphic.

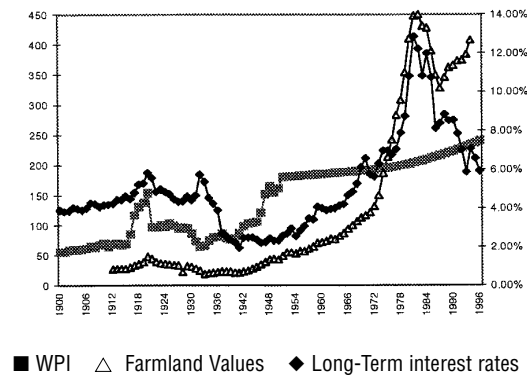
**APPENDIX A:
THE LONG CYCLE IN
REAL ESTATE ... IN BRIEF**



In Chapter 1 we introduced the concept of a 50- to 60-year long cycle in real estate, culminating in a classic boom–bust peak such as we experienced in the 1926–34 and 1984–93 periods. Exhibit A-1 plots several key indicators of the long cycle, with the general trend of real estate returns shown as a shaded background. This “general trend” is interpreted by us from the data in Exhibit 2 “Annual Return Data.”

Exhibit A-1

The Long Cycle of Inflation in the U.S.

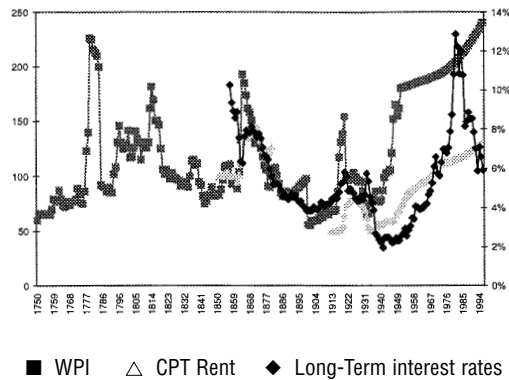


In the above exhibit, we see the peak in inflation, as marked by wholesale prices and long-term interest rates, preceding the boom–bust in real estate returns. (In Chapter 1 we showed how inflation led to a dramatic rise in property net operating incomes, which led to a construction boom, overbuilding, and collapse — Exhibits 3 and 4.) The peak in inflation in the late teens and late '70s also caused a peak in long-term interest rates, as market forces sought to maintain a real rate of return margin for such investments. In addition, we find a peak in farmland prices that precedes the inflation peak in urban properties. Farmland acreage prices seem to closely track wholesale prices, reflecting the fact that farm incomes are heavily influenced by, and respond quickly to, the rise and fall in commodity prices. Yet, the farmland peak precedes the general real estate boom–bust cycle by a number of years. The normal time lags in instituting property rent increases and new construction result in years of delay in the urban property peak versus farmland.

In addition to the two inflation cycle peaks in this century, we find three others in American history (1780, 1814 and 1864) as shown in Exhibit A-2.

Exhibit A-2

250 Years of the Long Cycle of Inflation in the United States



In the most recent three cycles, we see the peak in long bond yields coinciding with wholesale prices, while the CPI rent index lags the peak by six to 10 years. Although rents and wholesale prices have not actually declined in the latest cycle, the rate of increase has diminished from its rapid climb of the late '70s. Exhibit A-3 shows how the recent decline in wholesale price inflation has been accompanied by a decline in long-term interest rates. While there is almost no real estate return data available for the earlier cycles, we do find in Hoyt (1933) that Chicago land values peaked in 1869 at 60 percent above trend and troughed in 1878 at 50 percent below trend. A boom–bust of this magnitude did not recur in Chicago until 1925 (+65 percent) and 1933 (-40 percent). Also, in Exhibit A-4 we offer a chart of foreclosure rates for three cities and find the largest peaks occurring in the down-cycles of the 1870s and 1930s. Although this exhibit deals with single-family homes — not the investment property covered in this paper, we believe the concurrence of housing market weakness in the '80s with the office and other markets indicates that underlying forces in all real estate markets are similar in their effect and timing.



Exhibit A-3

The Recent Experience of Long-Term Rates and Wholesale-Level Inflation

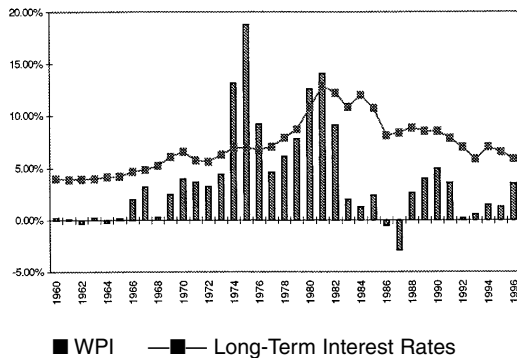
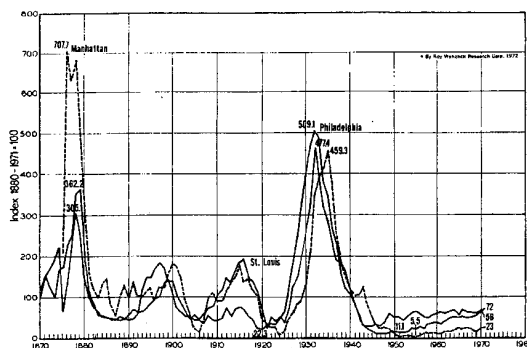


Exhibit A-4

Foreclosure Rates for Manhattan, Philadelphia & St. Louis Per 100,000 Families (Annual Data)

Source: *The Real Estate Analyst*, Wenzlick Research



Corp., 1972.

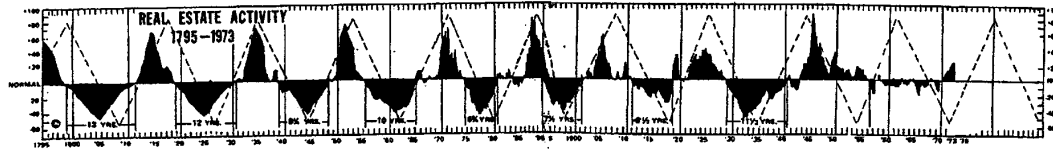
What might account for the length of these long cycles? The first one was 34 years peak to peak, the next two were 50 and 56 years, and the last one was about 62 years. Three possible answers are offered by Ayres (1990), Forrester (1976) and Kaiser (1979). Ayres speculated that clusters of innovations (technological transformations) fostered the long-wave cycle. Forrester modeled the lead-lag relationships in the capital equipment and consumer durables sectors of the economy and found that 50 years was the amount of time needed to develop cycle peaks of excess capacity and cycle troughs of deferred investment.

Kaiser investigated the sociopolitical changes that occur through different portions of the cycle and hypothesized that “each individual is deeply affected by the state of the economy during his or her adolescent and early business years. Thus, a person’s influence on the economy, whether as a businessman, laborer, consumer, banker, voter, or elected representative, is a lifelong reflection of this early experience.” Different generations take on a more optimistic and aggressive or pessimistic and conservative approach to business depending on their personal experience. For example, the Federal Reserve Board of the 1950s and 1960s was focused primarily on avoiding unemployment (to avoid another depression) and was willing to exponentially expand the money supply. Today’s Fed is just the opposite — willing to accept some unemployment in order to prevent any recurrence of inflation. Thus, it takes about two generations (or so) until the lessons from our elders become a little “old-fashioned” and lead the new generation into repeating the cycle. Perhaps as people live longer, the cycle will lengthen out.

Interestingly, the 18.3-year real estate cycle that was so actively referred to in Rabinowitz (1980), and Roy Wenzlick’s periodical from the 1950s to 1970s, the *Real Estate Analyst*, may play a part in breaking the long cycle into three sub-cycles. In Exhibit A-5 we reproduce Wenzlick’s real estate “activity” chart (which plots the number of voluntary transfers and is primarily a chart of residential cycles). Superimposed on this is the idealized 18.3-year cycle.

This classic 18-year real estate cycle temporarily disappeared in the 1950s and ’60s, probably due to the prolonged period of rebuilding necessary to overcome the effects of the Great Depression, followed by World War II. It probably reappeared in the form of the mortgage REIT debacle of 1973–75 and in the general overbuilding boom–bust of the 1985–93 period. In Exhibit A-6 we have listed all the real estate booms and busts we could glean from Hoyt (1933), McMahan (1976), Rabinowitz (1980), and Sakolski (1932), grouping them by the actual 18.3-year cycle dates from Wenzlick’s work.

**Exhibit A-5
The Wenzlick 18.3-Year Cycle**



Source: *The Real Estate Analyst*, Wenzlick Research Corp., November 1973.

**Exhibit A-6
Real Estate Booms and Busts in U.S. History
18.3-Year cycle**

Trough	Peak	
1795		1760-95: Wild Land Manias (Ohio, New York, Georgia "Yazoo" Territory) 1795-1805: Connecticut Gore Land Company crash 1791-95: Washington D.C. land boom and 1796 bust
1805	1814	
1825	1835	1832-37: Chicago real estate boom and panic of 1837 1834: Speculation from Maine to the Red River 1837: Sales of public lands peaked at 10 times the level of the previous 10 years
1845	1851	1848-54: California gold rush land boom and 1854 crash.
1861	1872	1869-72: Major peak and crash in Chicago land values 1862-73: Railroad land boom in the West 1873: Bankruptcy of Northern Pacific Railroad
1878	1888	So. California real estate boom and crash of 1887 (60 percent of newly created lots disappear) 1891-92: Peak and decline in Chicago land prices
1897	1904	
1918	1925	Florida land boom and 1926 crash 1925: major peak in Chicago land prices 1929: Empire State Building begun, called "Empty State Building" in 1931
1933	1946	1933-35: Home Owners Loan Corp. (Federal agency) takes over 200,000+ mortgages, recovers 92 percent of original capital by 1951
1962?	1973?	1950s syndication boom and 1962 bust (along with most listed real estate stocks — Glickman Corp. down 54 percent) 1969-71: Rise of REITs (130 formed), followed by defaults of mortgage REITs and NAREIT 1973-74 decline of 83 percent
1975	1989?	1980s office building boom, single-family home speculation (especially in California) 1990-92: NCREIF wash-out

In the above exhibit we have highlighted the Wenzlick cycle that contains the major cycle peak in bold. While the picture seems to hold up fairly well for the most recent three cycles, it certainly is muddy before that. Whether that

is a function of the lack of data or of the pre-urban youth of the country (when different cities' early growth was a result more of population migration than of an overriding economic cycle).

Finally, we have included Homer Hoyt's 1933 chart of the Chicago real estate cycle as Exhibit A-7, perhaps the best graphical

evidence of the long cycles that we have in the literature.

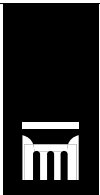
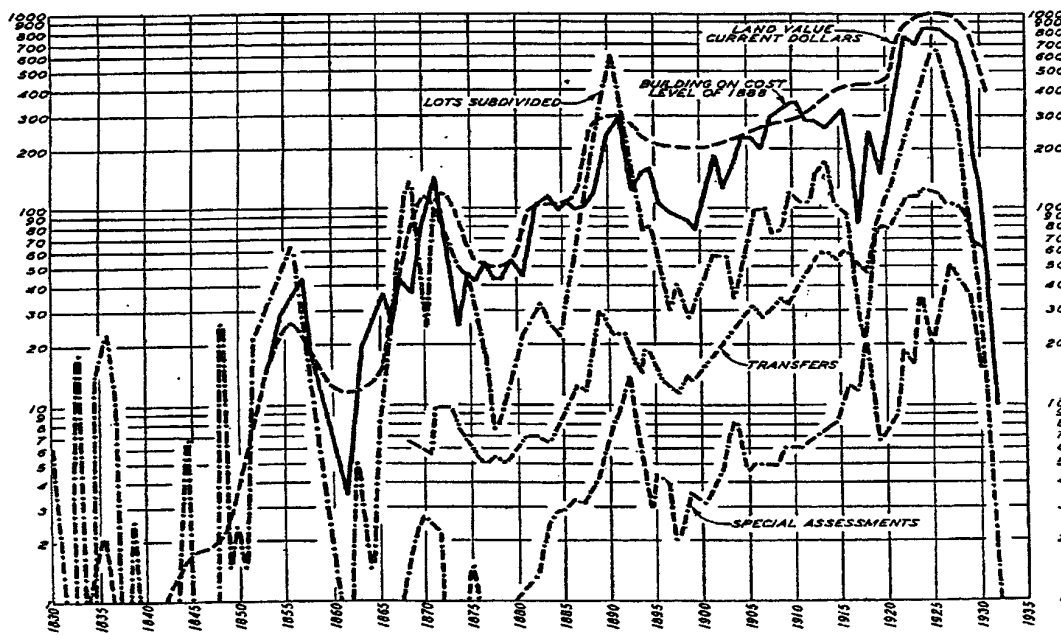


Exhibit A7

The Chicago Real Estate Cycle

Land Value	1 = \$5,000,000
New Buildings	1 = \$200,000
Transfers	1 = \$1,000
Lots Subdivided	1 = 200
Special Assessments	1 = 200





**APPENDIX B:
DATA TABLES FOR
ANNUAL RETURNS
USED IN THIS PAPER**

This appendix contains all of the annual return data used to compile the annual compound returns for the periods shown in Exhibit 2 of Chapter 1. Where fig-

ures are repeated for several years, this is the result of calculating internal rates of return for known beginning and ending points.



Exhibit B-1 Real Estate								
	Case: LA ³	WENDT: S ²	Grebler ¹				Stocks ^a	Bonds ^b
			NY Lofts	NY Apts	NY Lofts	NY Apts		
1919		11.7%					-3.36%	0.78%
1920		11.7					-7.91	8.81
1921		11.7					29.08	16.01
1922		11.7					7.70	5.08
1923		9.7	10.9%	13.4%			11.54	9.49
1924		9.7	10.9	13.4			29.07	8.29
1925		9.7	10.9	13.4			18.10	7.25
1926		9.7	10.9	13.4			11.61	7.77
1927		9.7	10.9	13.4			37.48	8.94
1928		-0.6	10.9	13.4	-2.2%	-0.4%	43.61	0.08
1929		-0.6	10.9	13.4	-2.2	-0.4	-8.41	3.42
1930		-0.6	10.9	13.4	-2.2	-0.4	-24.90	4.65
1931		-3.5			-2.2	-0.4	-43.35	-5.32
1932		-3.5			-2.2	-0.4	-8.20	16.84
1933		-3.5			-2.2	-0.4	53.97	-0.07
1934		-3.5			-2.2	-0.4	-1.42	10.02
1935		4.3			-2.2	-0.4	47.66	5.00
1936	12.4%	4.3			-2.2	-0.4	33.92	7.50
1937	12.4	4.3			-2.2	-0.4	-35.02	0.22
1938	12.4	4.5			-2.2	-0.4	31.14	5.51
1939	12.4	4.5			-2.2	-0.4	-0.42	5.95
1940	12.4	4.5			-2.2	-0.4	-9.78	6.09

¹ Refers to the footnotes of the same numbers for Exhibit 2 in Chapter 1

² Refers to the footnotes of the same numbers for Exhibit 2 in Chapter 1.

³ Refers to the footnotes of the same numbers for Exhibit 2 in Chapter 1.

^a Stock market returns are Ibbotsen's large stock returns for 1926–1995. For 1919–1925, we used the Standard and Poors Stock Index annual price change and added to this the Cowles dividend yield for each year to obtain a total annual return.

^b Bond returns are Ibbotsen's long term Treasury returns for 1926–1995. For 1919–1925, we used the BEA statistics for long term Treasury price change plus the annual interest yield for each year.



Exhibit B-2				
	Real Estate		Stocks^a	Bonds^b
	Case: LA³	WENDT: SF²		
1941	17.00%	5.60%	-11.58	0.93%
1942	17.00	5.60	20.33	3.22
1943	17.00	5.60	25.91	2.07
1944	17.00	5.60	19.73	2.82
1945	17.00	5.60	36.41	10.73
1946	13.60	9.20	-8.07	-0.09
1947	13.60	9.20	5.70	-2.63
1948	13.60	9.20	5.51	3.39
1949	13.60	10.70	18.79	6.44
1950	17.40	10.70	31.74	0.05
1951	17.40	10.70	24.02	-3.94
1952	17.40		18.35	1.16
1953	17.40		-0.98	3.63
1954			52.62	7.18
1955			31.54	-1.28
1956			6.56	-5.58
1957			-10.79	7.47
1958			43.37	-6.11
1959			11.98	-2.28
1960			0.46	13.79

² Refers to the footnotes of the same numbers for Exhibit 2 in Chapter 1.

³ Refers to the footnotes of the same numbers for Exhibit 2 in Chapter 1.

^a Stock market returns are Ibbotsen's large stock returns for 1926–1995. For 1919–1925, we used the Standard and Poors Stock Index annual price change and added to this the Cowles dividend yield for each year to obtain a total annual return.

^b Bond returns are Ibbotsen's long term Treasury returns for 1926–1995. For 1919–1925, we used the BEA statistics for long term Treasury price change plus the annual interest yield for each year.



Exhibit B-3

Real Estate

	PRISA ⁶	FNBC (CREF) ⁷	Miles, McCue ⁸				Hodges Wash. D.C. ⁵	FRC '71-77 ¹⁰ NPI '78 ⁹	Kelleher ⁴	Stocks ^a	Bonds ^b
			office	retail	res.	indus.					
1961								19.4%	26.89%	0.96%	
1962								6.2%	-8.73	6.88	
1963								12.0%	22.78	1.21	
1964								22.3%	16.51	3.51	
1965								10.8%	12.38	0.70	
1966							9.0%	10.7%	-10.07	3.65	
1967							9.0	8.5%	23.98	-9.19	
1968							9.0	7.7%	11.03	-0.26	
1969							9.0	10.4%	-8.42	-5.07	
1970							9.0	7.8%	3.98	14.00	
1971								9.2%	18.2%	14.30	13.24
1972								7.5	22.8%	18.95	5.67
1973	9.2%							7.5	16.7%	-14.78	0.88
1974	8.9		8.9%	6.1%	7.9%	9.4%		7.2		-26.45	3.36
1975	8.2	6.6%	8.2	5.9	1.8	12.1		5.7		37.30	9.08
1976	8.5	8.6	10.4	1.2	4.5	7.9		9.3		23.70	17.44
1977	10.7	8.7	9.2	11.1	13.3	11.8		10.5		-7.26	1.30
1978	19.5	14.7	13.2	9.7	13.9	14.8		16.11		6.57	-1.11
1979	24.0	14.7	22.0	25.8	26.8	24.0		20.46		18.60	-0.87
1980	22.0	12.9	28.7	12.1	18.1	27.4		18.07		32.13	-2.96
1981	15.7	13.5	21.5	12.2	14.3	24.2		16.63		-4.91	0.48
1982	4.4	10.4						9.44		21.11	42.08
1983								13.13		22.37	2.23
1984								13.84		6.11	14.81
1985								11.22		32.03	31.53
1986								8.30		18.55	24.08
1987								8.00		5.22	-2.67
1988								9.63		16.82	9.23
1989								7.77		31.53	19.05
1990								2.30		-3.18	6.27
1991								-5.64		30.57	18.70
1992								-4.25		7.69	8.09
1993								1.19		9.99	17.44
1994								6.33		1.29	-7.73
1995								7.60		37.48	30.90
1996								9.99		23.08	-0.83

⁴⁻⁹ Refers to the footnotes of the same numbers for Exhibit 2 in Chapter 1.

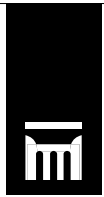
¹⁰ FRC Data for Commingled Funds, JMB "Case for Real Estate," 1978.



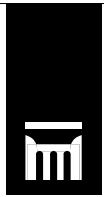
Exhibit B-4						
	NPI	Office	R&D	Retail	Whse	Apartment
1978	16.11	21.24	-	10.93	14.25	-
1979	20.46	19.60	13.22	11.24	20.37	-
1980	18.07	26.00	16.65	12.78	16.17	-
1981	16.63	20.23	26.75	11.02	15.18	-
1982	9.44	9.85	12.37	7.02	9.00	-
1983	13.13	12.73	19.76	13.86	10.07	-
1984	13.84	12.40	15.57	16.91	12.35	-
1985	11.22	8.98	11.32	14.97	12.81	11.59
1986	8.30	5.76	8.51	12.88	8.84	7.10
1987	8.00	4.03	6.68	12.61	12.10	6.94
1988	9.63	5.99	8.03	15.25	11.19	10.34
1989	7.77	4.76	5.68	12.41	9.71	8.82
1990	2.30	-0.88	1.40	5.92	2.26	5.80
1991	-5.64	-11.32	-5.63	-1.80	-2.84	-1.74
1992	-4.25	-8.26	-8.63	-1.87	-2.51	1.78
1993	1.19	-3.91	0.94	4.41	-1.67	8.69
1994	6.33	3.84	5.57	6.05	8.44	11.90
1995	7.60	7.25	11.01	4.00	12.84	11.49
1996	9.99	12.39	17.60	4.80	12.77	11.53

A large, light gray decorative graphic of a classical building facade with three columns and a pediment, centered on the page. The text is overlaid on this graphic.

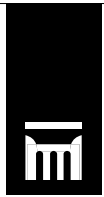
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Chapters 1–5**



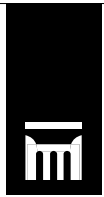
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Special Report

**PUBLICLY TRADED REITS:
NOT YET A PANACEA
FOR INSTITUTIONAL
REAL ESTATE INVESTORS**

BY RONALD W. KAISER

BAILARD, BIEHL & KAISER, INC.

A FOSTER CITY, CA REGISTERED INVESTMENT MANAGEMENT FIRM

APRIL 1, 1998

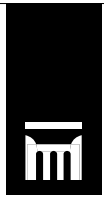
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Sizzling Returns Catch Wall Street's Attention

Publicly traded REIT returns have been wildly rewarding while coming out of the most recent real estate cycle trough. In 1990, anticipating the cycle bottom, the NAREIT Equity Index returned a negative 23.6 percent. After that, annual returns have run at a 20 percent compound rate through year-end 1997. As Exhibit R-1 shows, only the general stock market was able to give REITs any real competition. Institutional property returns, as measured by the NCREIF Index, fared poorly.

Exhibit R-1	
Annualized Returns for Years 1991–1997	
NAREIT Equity Index (ex-Health Care)	20.0%
S&P 500 Stock Index	19.8%
Long-term Treasury Bonds	10.9%
International Stocks (EAFE)	8.1%
NCREIF Property Index	4.0%

Such dazzling returns have so caught the fancy of Wall Street, that what was once an overlooked sector by stock market investors recently has been one of the hottest sources of underwriting fees for investment bankers. Exhibit R-2 shows REITs as one of the top five industries in equity capital raising (IPOs plus secondary offerings) in each of the years since the end of 1992. An additional \$4.5 billion of REIT equity was offered to the market in the first two months of 1998.

Exhibit R-2				
Capital Raising: Equity and Equity-Linked Offerings (Amounts in Billions of Dollars)				
	Total for Domestic Market	Total for Real Estate	% of Domestic Market	Industry Rank
1992	\$ 88.3	\$ 1.6	1.8%	12
1993	\$117.6	\$12.0	10.2%	3
1994	\$ 72.1	\$ 9.4	13.0%	2
1995	\$ 90.9	\$ 6.0	6.6%	5
1996	\$130.2	\$ 9.4	7.2%	4
1997	\$132.3	\$22.8	17.2%	2

Source: Merrill Lynch

Where equity REITs had a total market value (“market capitalization”) of only \$9 billion in 1991, today there is over \$140 billion. Of the nearly 200 REITs in the universe, 42 of them were over \$1 B. in size. And, they are attracting considerable institutional attention. According to Giliberto (1996), since 1994, institutional ownership of REITs has been about 50 percent of total capitalization, up from less than 25 percent through 1992. By another measure, there are now more than 60 mutual funds solely dedicated to real estate securities!

Even over the long haul, equity REITs have turned in a very respectable performance. Exhibit R-3 shows returns by asset class over the entire period since the NAREIT Index began in 1972.

Exhibit R-3	
REITs Are Respectable in Long-Term Annualized Returns 1972–1997	
NAREIT Equity Index (ex-Health Care)	13.3%
S&P 500 Stock Index	13.3%
Long-term Treasury Bonds	9.3%
International Stocks (EAFE)	12.8%
FRC*/NPI Property	8.8%

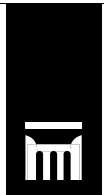
** Frank Russell Co. data for commingled real estate funds for years 1972–77. NCREIF National Property Index begins in 1978.*

REITs also are touted by institutional investors as a cure for their prior problems with private commingled equity funds: illiquidity, control and alignment of interests. The enthusiasm for REITs seems boundless.

In this chapter, we will look beneath the hype, and critically examine the issues of stock market influence, liquidity, growth, and governance. REITs are not yet a panacea.

In the Very Long Run, Publicly Traded REITs Look a Lot Like Real Estate

Numerous studies have sought to answer the question: “Are REITs stocks or are they real estate?” It appears the answer is “Yes”. In the short run REITs behave a lot like stocks, and are heavily influenced by stock market forces, but in the long run, REIT returns seem to be

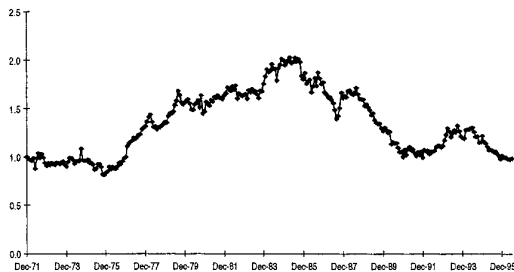


fundamentally driven by real estate markets. Let us first examine the long run arguments.

The simplest analysis is to remove the stock market effect from REIT returns to see what is left. In Exhibit R-4, we divide cumulative equity REIT returns by cumulative S&P 500 Index returns.

Exhibit R-4

**Ratio of Cumulative Equity REIT Returns vs. S&P 500
January 1972–June 1996**



The real estate boom from 1975 to 1985 clearly shows up in the doubling of stock returns enjoyed by equity REITs during that period. Then, there is the long slide into 1991, reflecting the underlying property market collapse over that period. Over the full cycle, REIT returns are about equal to stock market returns as measured by the S&P.

This does not answer the question as to why REIT returns are so much higher than NCREIF institutional property returns to date. Geltner, Rodriguez and O'Connor (1995) sought to compare the two markets by delevering REIT returns — in effect recalculating what the returns would have been if REITs had owned their properties on an all-cash basis. Geltner used the NAREIT All-REIT Index (which includes primarily equity REITs, but also includes a varying number of mortgage REITs.) The results are shown in Exhibit R-5. (Also see Chapter 2, Exhibits 16 and 17, for further analysis of the risk implications in this concept.)

Mahoney, McCarron, Miles and C.F. Sirmans (1996) delevered the NAREIT returns by factoring in differing leverage rates for different property types during 1995, and found that

delevering reduced REIT returns by just 2.4 percent. Of course, REITs' use of leverage has declined since the 1990 crash.

Exhibit R-5

**Unlevered REIT Returns Are Lower Than the Index Returns
Annual Total Return Performance
1975–'93**

NAREIT All-REIT Index	15.34%
Unlevered All-REIT Index	11.62%
NCREIF National Property Index	7.88%

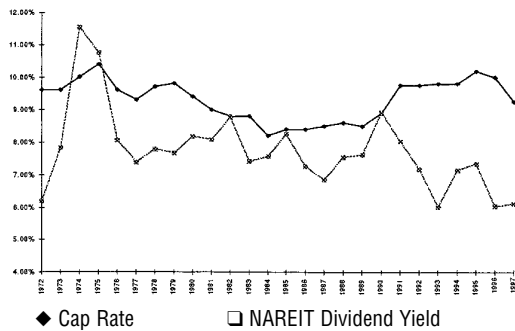
However, since the unlevered REIT returns are still at least 400 basis points higher than institutional property returns, the authors speculate about some of the possible explanations. First, there could have been different sets of motivations for the two groups of investors over this particular time period. Secondly, REITs historically have tended to hold smaller properties, in smaller cities, and in a greater variety of property types than is found in NCREIF. Perhaps these types and locations of properties are fundamentally more risky than those represented in the NCREIF Index, and therefore should generate higher returns. Mahoney et al (1996) performed a detailed analysis of the locational differences in 1995, and found that REITs were relatively overweighted in markets with greater population growth, and concluded that since, "growth typically is a positive indicator of the health of a real estate market, it is not surprising that public real estate has recently performed better." Finally, until 1993, REITs generally were too small to attract institutional interest, so they were held largely by small, tax-motivated investors. In 1993, the tax rules that constrained institutional investors were lifted, thereby allowing the new capital to move prices to a higher equilibrium level. It appears to us that there is some verifiable truth to the last argument.

In 1975, REITs traded at a discount to their underlying net asset value, but by 1993, they had moved to a premium. In Exhibit R-6 we plot the annual NAREIT Equity REIT dividend yield and our view of national average property capitalization rates. (For further explanation of the derivation of these cap rates, see Exhibit 38A and the surrounding discussion in Chapter 4.)



Exhibit R-6

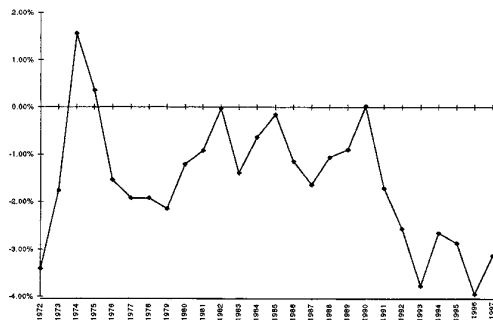
REIT Dividend Yield and Property Capitalization Rates: 1978-1997



Cap rates were around 10 percent in the two real estate cycle troughs of the mid-1970s and the early 1990s, dropping to nearly 8 percent during the boom of the 1980s. Equity REIT dividend yields have been more volatile. In Exhibit R-7, we can view the relationship between the two, by subtracting REIT dividend yields from the cap rates.

Exhibit R-7

REIT Dividend Yields vs. Property Cap Rates



The average difference, or parity level, over this time period appears to be for REIT dividends to run about 200 basis points below cap rates. This intuitively makes sense, since recurring capital expenditures run about that level for properties, so that distributable cash from a 9 percent cap institutional property actually would be about 7 percent (depending on the property type and the point in the real estate cycle). In 1975, REITs paid about 30 basis points more in dividend than property

cap rates — that is, REITs were trading at about a 230 basis-point discount to net asset value (NAV). By 1993, REIT dividend yields fell to a record low versus property yields, or about 170 basis-point premium to NAV. This amounted to a 57 percent increase in REIT share prices relative to underlying property values. Over a 19-year period, this move alone would have contributed an extra 2.4 percent per year return to REITs vs. properties! Thus, a rough estimate of the sources of relative out-performance of REITs versus NCREIF properties, is shown in Exhibit R-8.

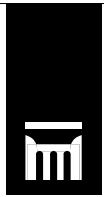
Exhibit R-8

**Possible Sources of REIT Return Variance to Property Returns
Annual Total Returns 1975–1993**

NAREIT All-Reit Index	15.3%
Less: effect of leverage	(3.7)
effect of move to NAV premium	(2.4)
effect of differing property types, locations, and strategies (residual)	(1.3)
Equals: NCREIF (NPI)	7.9%

Interestingly, the fundamental growth in equity REITs over this 19-year period was fairly modest. In December 1974, the Equity REIT portion of the NAREIT Index was yielding an annualized 12.91 percent on an index value of 56.64, for a dollar dividend of \$7.312 on the index. By December 1993, the index yielded 6.81 percent on an index value of 223.11, or \$15.194 in annualized dividends. This is equal to a 3.92 percent annual growth in dividends over 19 years, and is about what one would expect from a property portfolio over those years, which included the “bust” of the early '90s. (By contrast, the Wall Street story today is one of “high growth,” with First Call consensus analysts’ annual FFO growth forecast at 9.5 percent in February 1998.)

Of course, this analysis must be taken only for what it is — a rough, relative “order of magnitude” approach, which mixes Geltner’s All-REIT analysis with our equity REIT views (some apples and oranges here). There also is one additional likely source of return difference: different pricing mechanisms. The public markets look ahead of (anticipate) the real estate cycle, whereas private market returns



are based on appraised prices, which look backwards. Thus, REIT returns always will have two or three years of forward-looking market forces built into them, thereby showing slightly higher returns than for properties in up cycles, and slightly lower returns than properties in down cycles. Mahoney et al (1996) found that public real estate has a consistent return advantage when change in vacancy is considered. They interpreted this to be the quicker market pricing reaction to improvement news versus the process of private market appraisals. (This lead-lag effect is further discussed in the volatility-risk discussions surrounding Exhibits 13, 16, and 17 of Chapter 2.) Nonetheless, it is useful to see that, over time, and assuming no further change in the relative premium to NAV, the total return to publicly traded equity REITs would be similar to the return that could be achieved with an equally leveraged portfolio of privately held properties.

Finally, we should briefly review some other important studies that illustrate the importance of property markets as the principal drivers in REIT returns.

Giliberto and Mengden (1996) compared the NAREIT equity REIT quarterly dividend flows per index share to quarterly income flows per index share of the NPI, and found a statistically significant 0.51 correlation. This high correlation is all the more surprising, since their study did not attempt to incorporate such factors as REIT leverage, varying dividend payout ratios and the impact of capital expenditures on NPI cash flow. They then valued REIT cash flows by using NPI pricing parameters, and found that such a “private-market” NAREIT Index is much less volatile than the public index, and that the public index leads the private market analogue by one to two years. The mirror-image approach of valuing NPI cash flows by NAREIT pricing gives similar results.

Graff and Young (1997) found serial persistence in the top and bottom quartiles of REIT returns from period to period, over the years 1987–96, whereas, for other publicly traded stocks, there is serial independence (future returns cannot be forecast by money managers). Since the authors had found similar serial persistence in NPI returns in an earlier study, this suggests that annual REIT returns

contained a component that tracked the qualitative performance of underlying real estate assets during this period.

Mueller and Laposa (1996) found that REIT returns, when grouped by property type, have moved very differently since 1985 when compared to each other. They generally have reflected the underlying property market movements during these time periods. Similarly, Guenther and Ferguson (1996) found a long-term (5-year moving average) correlation of 0.55 between retail REIT returns and private market retail returns, even though the trailing four-quarter returns showed no correlation whatsoever. They also found an 8- to 9-quarter lead-lag relationship between the public and private markets. Liang, Chatrath and McIntosh (1996) approached the issue of comparing apartment REITs with apartment properties by employing a double hedging strategy — hedging out both the S&P 500 effect and the equity REIT effect — and determined that the resulting returns explained 52 percent of the Russell-NCREIF apartment return index for the period 1982–’93.

Finally, as the REIT universe becomes more complex and reflects different strategies and property types, it becomes important to look behind the surface index returns. For example, the 1997 NAREIT Equity Index showed a total return of 20.6 percent. But, if we remove CCA Prison Realty (an unusual property type), Starwood Lodging (hyped by its paired-share tax advantage in bidding for the IIT hotels), and Crescent and Vornado (both became public opportunity funds chasing after cold-storage facilities and casinos), the balance of the REIT universe generated a 15.8 percent return, a figure more in line with the continuing underlying property market recovery.

Exhibit R-9		
What are Real REIT Returns?		
		1997 Total Return
	NAREIT Equity (ex-HC) Index	20.57%
Less:	CCA Prison Realty	55%
	Starwood Lodging	62%
	Crescent	54%
	Vornado	84%
		15.8%



There also are some significant differences between the various benchmarks used to measure REIT returns. The NAREIT index is the most popular, and has the longest history. It includes every publicly traded REIT that is a member of NAREIT (which includes most REITs), and is weighted by market cap. A number of health care companies are organized as REITs, which some investors do not consider as real estate plays, so the index is available both with and without health care REITs. Probably the biggest concern some investors have with NAREIT is that it includes new REITs the very next month after they have completed an IPO. As a result, it tends to have higher returns in recent years than the other indices because of the heavy slate of new offerings. The other widely used index is the Wilshire Real Estate Index, which, because it appeals to institutional investors, only includes the larger REITs (more than \$100 million market cap). It also waits until the next quarter to include new IPOs, thereby giving a truer picture of ongoing real estate performance, after the IPO sizzle settles down. Finally, it is designed to be a broader real estate index by including other real estate companies that are not REITs, but instead are conventional corporations. As a result, the property-type mix and the regional mix vary between the indices. Exhibit R-10 illustrates the differing performance between the two indices in recent years.

Exhibit R-10		
Recent Performance Differences in Two Major REIT Indices (Annual Total Return)		
	NAREIT Equity (ex-Health Care)	Wilshire Real Estate
1990	-23.6%	-33.5%
1991	29.4	20.0
1992	20.7	7.4
1993	18.7	15.2
1994	3.0	1.6
1995	14.2	13.6
1996	36.4	36.9
1997	20.6	19.8
1990-97 Annualized	13.4	8.2

The more institutionally oriented Wilshire index is probably a more realistic picture of the kind of performance a long-term investor

would have received in the IPO-hyped markets of the 1990s, though the NAREIT index is the one most often used to generate investor enthusiasm for such stocks.

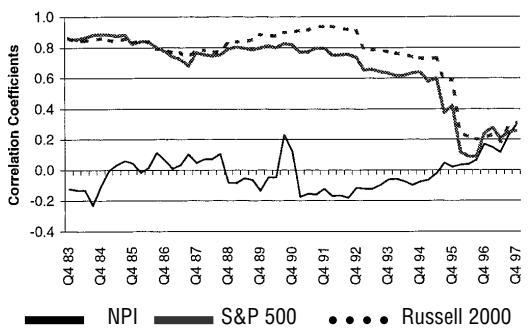
In conclusion, it does appear that public market REITs capture underlying property market returns (leveraged) over the long run, say 10 years or more. However, in the short run, they can behave a lot like stocks, as we shall see in the next section.

But, the Shorter the Horizon, the More They Look Like Stocks

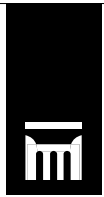
Historically, public REITs have had a high monthly return volatility — similar to stocks, but a bit lower—and a high correlation with both the S&P 500 Index (0.8) and even more so with the Russell 2000 small cap stocks (0.9). With the recent boom in REIT market capitalization, however, the argument is that the institutionalization of REITs has reduced the correlation with stocks and increased the correlation with private real estate. On the surface, this appears to be true, as shown in Exhibit R-11.

Exhibit R-11

**REIT Correlation with Stocks and Property (NPI)
Rolling 20-quarter correlations of NAREIT Index (ex-Health Care)**



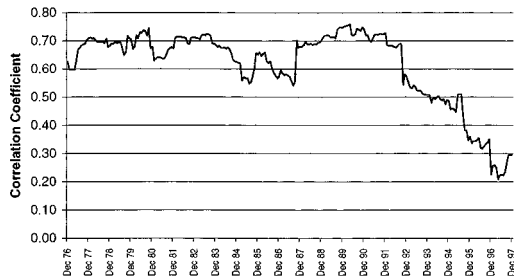
Indeed, since the modern REIT era began in 1993, correlations with both large and small cap stocks have plummeted, while the correlation with the National Property Index (NPI) has risen. As of the end of 1997, they all are approximately the same at about 0.3. Does this mean that REITs now can be used as the multi-asset portfolio diversifier that once could only be achieved via appraisal-based real estate returns? It is highly uncertain.



Correlation coefficients can be highly unstable over time. In Exhibit R-12, we plot the same rolling five-year correlations, but using monthly returns instead of quarterly.

Exhibit R-12

**5-Year Rolling Monthly Correlation:
NAREIT (ex-HC) vs. S&P 500**



REIT correlations had been in a slow, though unsteady, decline with the S&P 500 in the 1980s, from a high of 0.75 to a low of .54, which was reached just prior to the October 1987 stock market crash. In the crash, REITs behaved as they had before, with correlations running around 0.7 for the next five years. Once October 1987 dropped out of the correlation sample (beginning in November 1992), the correlation dropped off precipitously, and continued to decline — until there was a mild market weakness in October 1997, when REIT shares typically were dropping about 50 percent as much as the market.

This decline in correlation coefficients during prolonged bull markets is not unique to REITs. Using data from Ghosh, Miles and Sirmans (1996), we have prepared the table in Exhibit R-13.

Over this period, the S&P Electric and Retail sectors, as well as small-cap stocks in general, all showed declines in correlation that were similar to the NAREIT decline. Yet, it is doubtful that market analysts would claim that these three sectors are no longer behaving like stocks and that they could be counted on to hold onto their low correlation in the next bear market! REITs remain as likely to be caught as much in the downdraft of the next bear market as they were before, behaving more like stocks than private real estate. (It also is worth noting that in the other world markets, many of them more mature than our

own REIT market, correlation coefficients tend to run between 0.5 and 0.9, with the exception of Austria, Germany and Switzerland, where the securities are in the form of open-end funds that trade at NAV, according to Eicholz (1997).)

Exhibit R-13

**Correlations of Monthly Returns With
the S&P 500
Past 12 years, in 3-year Sub-periods**

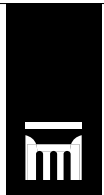
	1985-87	1988-90	1991-93	1994- June 96	1985- June 96
NAREIT (ex-Health)	0.77	0.71	0.38	0.40	0.61
S&P Electric Util.	0.52	0.58	0.42	0.40	0.49
S&P Household	0.77	0.80	0.57	0.65	0.72
S&P Retail	0.86	0.78	0.48	0.39	0.72
Ibbotson Small Cap	0.92	0.82	0.58	0.56	0.79

In terms of volatility risk, REITs continue to behave more like stocks, and a bit less like private real estate. From the same Ghosh (1996) reference, we prepared Exhibit R-14.

Exhibit R-14

Standard Deviation of Monthly Returns

	1985-87	1988-90	1991-93	1994- June 96	1985- June 96
NAREIT (ex-Health)	3.97%	3.26 %	3.73%	2.63%	3.50%
S&P 500 Index	6.07	4.08	3.06	2.37	4.15
S&P Electric Util	4.95	4.20	2.98	4.03	4.07
S&P Household	6.57	5.33	4.07	3.64	5.19
S&P Retail	8.78	8.47	6.04	4.89	7.26
Ibbotson Small Cap	6.56	4.57	4.17	3.48	4.89

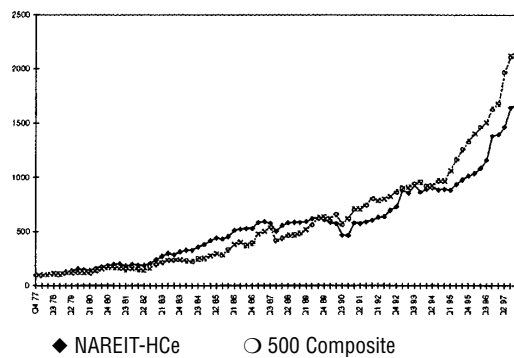


It appears that the stock market in general is getting less volatile as the bull market carries on longer. There is no monthly return data for private real estate, but Giliberto & Mengden (1996) calculate an annual volatility of the NPI of 3.94 percent for the period 1978–95, whereas the NAREIT Index had annual volatility of 14.65 percent over the same period. By these volatility measures, REITs still are stocks, not real estate.

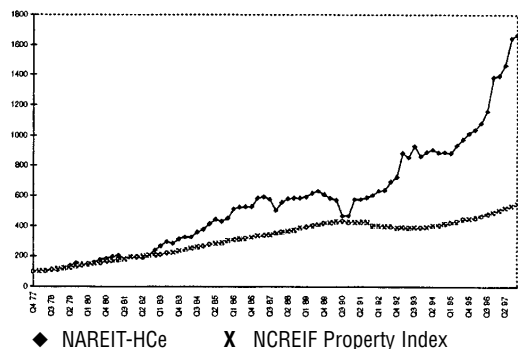
Finally, we would like to close this section with a “Growth of a Dollar” chart, Exhibit R-15A, which shows cumulative returns for REITs, stocks, and private real estate.

Exhibit R-15A

**Growth of a Dollar:
NAREIT index vs. S&P 500
1978–1997**



**Growth of a Dollar:
NAREIT (ex-HC) vs. NPI
1978–1997**



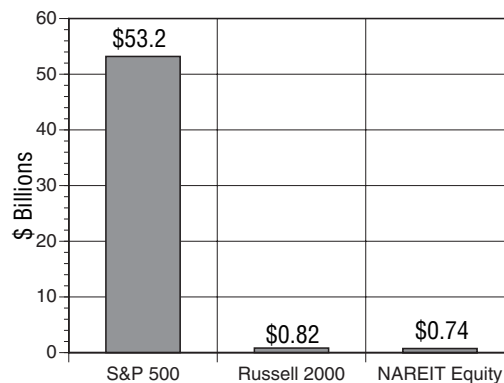
From this long-term perspective, it appears that REITs in the modern, post-1992 era are being pulled along more by the forces of Wall Street than by the underlying real estate market. Later, we will address the likelihood of continuing the high multiples and low-dividend yields that contributed to the strong performance of REITs in the 1990s and currently remain in fashion.

They Still Are Small-Cap Stocks, Industry Hype Notwithstanding

At the end of 1997, there were 42 REITs with market capitalization more than \$1 billion, which would place them in the bottom decile of the S&P 500, certainly the trait of a large cap stock. The very largest ones, at \$3 billion to \$6 billion, would rank in the fifth or sixth decile of the S&P. However, if one looks at average market capitalization, the typical REIT still looks a lot more like a small-cap stock than a big-cap stock, as shown in Exhibit R-15B.

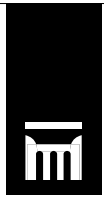
Exhibit R-15B

**Average Market Capitalization
at Year-End 1997**



To put the surging market cap of REITs in another perspective, there are a half-dozen companies (e.g., GE, Microsoft, Merck) whose individual market cap is greater than the entire capitalization of \$140 billion for all 200 REITs added together.

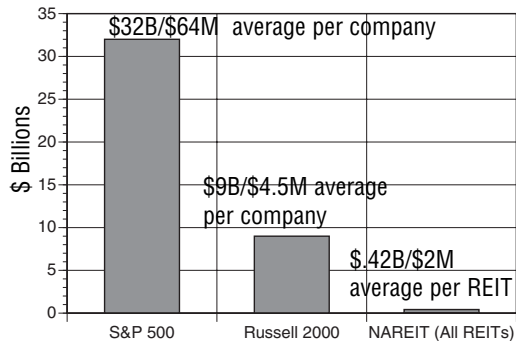
An even bigger issue for REITs is their trading volume. In 1997, the typical REIT traded only



\$2 million of shares per day. By contrast, big-cap stocks trade more than 30 times as much! Even small-cap stocks trade more than REITs do, as shown by the comparison in Exhibit R-16.

Exhibit R-16

1997 Average Daily Trading Volume



True, a few REITs actively trade. Starwood traded \$80 million per day in 1997, Crescent did \$19.5 million, Equity Office and Equity Residential each ran around \$15 million, but nearly all the rest were well below \$10 million. According to Ghosh et al (1996), even the so-called “New Age” REITs’ trading volume settles down to about 50 percent of comparable non-REIT stocks, once the IPO flurry has settled down. However one views these liquidity measures, REITs still are very small cap stocks.

It also is worth noting that even the much larger liquidity of big-cap stocks is no assurance of stability when market sentiment changes. Exhibit R-17 illustrates three very large companies whose price hit an air pocket on a day of disappointing news in the otherwise halcyon bull market of 1996.

Exhibit R-17

Even Large-Cap Stocks Have Liquidity Problems at Times

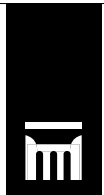
	Trade Date	Market Cap	Trade Volume	Price Move
Phillip Morris	8/9/96	\$73.4B.	\$186M.	-14%
Pepsico	9/27/96	44.3	636	-7
AT&T	9/24/96	84.1	960	-10

One would hope that there would not be a reason for a mass rush to the exits in a public REIT, because institutional holdings are just as large a percentage here as they are in many large-cap stocks — 50 percent for the average REIT. Graff & Young (1997), in their previously mentioned work on serial persistence of REIT returns, found one glaring exception to this persistence: large-cap REITs since 1993 — the period and stocks that have attracted institutional attention. The authors believe this lack of persistence is due to the impact of institutional trading on these thinly traded issues, resulting in unpredictably random stock market behavior — a temporary divergence from underlying real estate returns. A more supportive view comes from a study by Giliberto and Mengden (1996), which finds no evidence that high levels of institutional ownership add to volatility or reduces liquidity in the period through third quarter 1995.

Still, a low level of liquidity would not be a particularly serious concern for institutional investors who allocated only a small percentage of their fund to REITs, and then diversified those over a broad list. It is common to allocate 5 percent to 10 percent of a fund for a Russell 2000 small-cap portfolio. (Of course, there are 10 times as many names to trade in that sector.) The real concern is with holders of large blocks of a single REIT, resulting either from a roll-up IPO or from taking UPREIT shares in exchange for a property portfolio. It is not unknown for institutions to own more than \$100 million in a single REIT that trades only \$2 million per day. At that rate, it would take 10 weeks of trading to sell out the position, and that would allow no other sellers! Realistically, it could take six months or more to liquidate such a position. The institution could have liquidated the entire property portfolio on the private market in that much time, or less. Public REITs still do not offer the kind of liquidity that institutional investors have come to count on in their other public market dealings. They are still a small-cap stock.

Will REITs Continue to Be Less Costly to Trade in the New Era?

Another advantage often ascribed to public REITs is the lower cost to buy and sell property. While property transaction costs may vary widely depending on the contractual relationships involved, public REITs can be more readily analyzed in terms of the bid-ask



spread, plus whatever brokerage fees may be involved. A 1997 paper presented by Rebel Cole of the Federal Reserve Board at the Real Estate Research Institute annual meeting in Chicago, and critically reviewed by Geltner (1997), found that the apparent liquidity in the REIT market had improved between 1990 and 1994, with the principal evidence being the decline in the bid-ask spread of a value-weighted REIT portfolio from 2.39 percent to 2.00 percent.

The more interesting question, however, is why such a reduction in spreads occurs. The paper's analysis revealed three major determinants in REIT bid-ask spreads: daily price volatility, share price and the exchange on which a REIT is traded. (Interestingly, there only was a weak relationship between the total capital size of the REIT and the spread). Since most REITs are traded on the low-cost NYSE, the "exchange-related factor is not going to matter much. However, the percentage spread vs. price has come down in recent years only because the relatively fixed dollar spread is divided by a higher share price. This is because the REIT market has boomed with the general bull market in stocks. Should prices decline, transaction costs could increase again.

Even more important, however, is the relationship between volatility and spread. Volatility has been declining in recent years, both for REITs and stocks in general, as evidenced in Exhibit R-14. However, volatility usually goes back up in bear markets, thus, the bid-ask spread might be quite different if we enter a period of uncertain, fearful markets. In such times, it might be just as expensive to exit a REIT position as it would be to sell property on the private markets.

Have Public REITs Really Solved Institutions' Agency Problems?

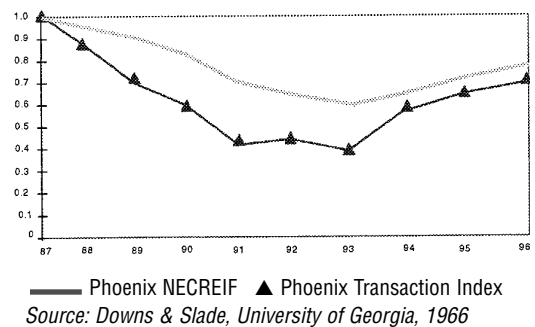
In the last real estate crash, institutional investors became very disenchanted with traditional private real estate advisers. With fees based on assets, the delayed response to recognizing the crash through appraisal write-downs did not sit well. Even when there were write-downs, they often did not recognize the full extent of the market drop. As a result, advisers constantly were put in the position of resisting investors' liquidation requests, claiming a lack of market liquidity, when in reality, there was an appraisal pricing problem.

A particularly good illustration of the appraisal-induced liquidity gap is found in a recent paper by Downs and Slade (1997) of the University of Georgia. They studied 937 Phoenix office building transactions from 1987 through 1996. Arizona law provides for considerable public data on property transactions, thereby offering a sizable data set for their study. They developed a mathematical model to normalize all properties listed at more than 5,000 square feet to institutional property pricing, in order to provide their transaction index with comparability to the appraisal-based NCREIF Phoenix Index.

In Exhibit R-18, we plot the two indices.

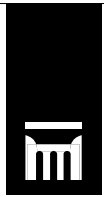
Exhibit R-18

The Phoenix Office Market Story Price Index Comparison



The transaction index dropped 59.2 percent from 1987, bouncing along a three-year bottom that began in 1991, while the appraisal index declined only 43.6 percent to a later, 1993 bottom. This explains why real estate advisers claimed there was a "liquidity" problem. Indeed, at their carrying prices on the properties, they could not find a buyer. Yet, there were transactions occurring at the time, just at lower prices!

While the recent surge of equity REIT offerings "solved" the pricing and liquidity problems, in its own "public market" way, as we discussed in earlier sections of this chapter, has it really solved the agency problem by aligning the interests of investors and management? Sagalyn (1996) begins with this offering, "By internalizing the management functions at both the portfolio and property level, the new REITs aim to sidestep the worst abuses of the adviser-affiliate relationship,



which tarnished the REIT industry's reputation in the 1970s." Sagalyn then goes on to enumerate 12 conflicts of interest taken from the prospectus of each REIT IPO in 1993 and 1994.

But first, as background, Sirmans (1997) offers the view that REIT law originally only allowed numerous small investors, which is fundamentally at odds with the concept of protection against expropriation by management. There were not any large shareholders to hold the REIT boards accountable. Boards usually were friendly to management. Further, with management typically owning 10 percent to 15 percent of the stock, they generally are entrenched in their roles, with little incentive to be responsive to shareholders, except when it is also in their interest. Finally, "the typical legal and financial complexity of real estate investments makes detection of serious managerial misbehavior difficult, imposing still substantial agency costs on REIT sponsors and investors," per Sirmans.

The single biggest area of concern is the UPREIT, or umbrella partnership REIT, in which portfolios of properties with low-cost bases are transferred tax-free into partnership shares that are convertible into REIT shares. Taxes on the built-in gain must be recognized by the partners upon sale of property, pay-down of partnership debt, or exchange for REIT shares. The UPREIT format introduces a built-in conflict problem between the umbrella partnership partners who wish to avoid taxes on selling any partnership properties and the REIT shareholders, who may best be served by selling the properties to redeploy the capital elsewhere. The UPREIT structure further compounds the problem of disclosure and effective monitoring, because the REIT owns not properties, but partnership shares, whose books are not consolidated into the REIT accounting. And the problem is widespread. According to Acton and Poutasse (1997), one-third of all REITs, comprising 52 percent of the market cap of all REITs, were organized in the UPREIT format.

Other conflicts arise when management has interests in properties or property-related businesses outside the REIT, a not-uncommon circumstance given the entrepreneurial nature of many of the REIT founders. This presents a problem of resource allocation at a

minimum, as well as a potential source of competitive affiliates, according to Sagalyn. Another conflict arises from the requirement that 95 percent of a REIT's income must be from qualified real estate sources. Unqualified income ends up being funneled through subsidiaries or through paired-share corporations, where the potential for overcompensation, expense preferences, and other abuses exists and is difficult to monitor.

The best solution to these kinds of problems is diligent investor selection and monitoring of a truly independent board majority — exactly the kind of effort institutional investors are seeking to avoid in the old private adviser relationship.

Will REITs Really Run the World?

A currently popular topic among investors these days is Peter Linnemann's (1996) argument that REITs are similar to other capital-intensive industries, in that consolidation into an oligopolistic group of corporations is inevitable. He argues that REITs have access to cheaper capital than private operators do, thereby allowing them to outbid for properties and portfolios. This means that the most efficient REIT operators will be able to issue new stock at prices in excess of their NAV, thereby enabling them to dominate their less efficient competitors. Further, the conventional wisdom is that larger REITs have economies of scale that will lead to natural dominance of the industry. First, for a look at how large a share of the property market already is owned by public companies, and a comparison to some other industries, we refer to data from a study by Ziering, Winograd and McIntosh (1997) as shown in Exhibit R-19. Their figures are based on a calculation of REIT-owned square footage vs. the estimated total market square footage of properties that could or would be owned by REITs.

Outside of the hotel sector (where 81 percent of the public ownership is by non-REIT corporations) and the regional mall sector (where there are only 391 properties nationwide), none of the property types even begin to approach the public ownership levels of other highly fragmented industries such as retail trade (263 public companies) and trucking (57 public companies).

Exhibit R-19

Property Market Penetration by Public REITs and Corporations (September 1997)



<u>Property type</u>	<u>% Publicly Owned</u>
Tenant-occupied private office buildings	3.4%
Hotels and motels with more than 20 rooms	17.3
Tenant-occupied warehouses more than 25,000 square feet	3.7
Apartments of 20 units or more	7.4
Regional Malls more than 400,000 square feet	21.9
Non-mall retail properties	9.5

<u>Vs. Public Ownership of Other Major Industries (based on share of total sales)</u>	
Primary metals	70%
Food Manufacturing	61
Printing, publishing	37
Retail trade	26
Trucking	25

In examining which REITs issued new equity, Ghosh, Nag and Sirmans (1997) found, not surprisingly, that strong performance leads to improved access to the capital markets. From 1992 through 1996, office REITs had the highest level of new equity issuance and also enjoyed the highest cumulative return. Apartment REITs were the second-most active and enjoyed the second highest cumulative returns until mid-1996. Mall REITs had the poorest performance and also had the highest reliance on debt issuance over the period. On an individual firm basis, REITs that performed the best offered the most new equity, and the poorer performers in terms of investor returns the least active. Is this a self-fulfilling forecast — will the higher-flying REITs continue to issue low-dividend shares and invest the money in higher-yielding properties? Only the naïve believe that the cost of capital is the dividend yield. Therein lies the rub, as we shall see.

Now, let us examine some more skeptical studies that cast doubt on the view that public REITs will come to dominate the real estate landscape, as forecast in the above-mentioned Linnemann and Ziering et al papers.

Bers and Springer (1998) analyzed REIT financial statements from 1992 through 1996, and found that the largest source of scale economies came from general and administrative expense. Obviously, two small REITs can merge and save the expense of duplicating the CEO, the Board, and other functions. But, as

REITs approach \$1 billion in size, such expenses fall to only .11 percent of total no-interest expenses, and no further savings are found. The largest source of expenses — property operations — falls to about 50 percent of total costs at a REIT of \$250 million in size, and shows little improvement after that. There is only so much savings possible from bulk buying, etc. In fact, at a size above that of the average REIT, slight scale diseconomies appear to exist. Perhaps large companies with large staffs become more difficult to manage effectively.

Mueller (1998) finds that the cost of unsecured debt for REITs drops to about 60 basis points over London Interbank Offered Rate (LIBOR) at around \$1 billion REIT size, and levels off there. Other sources of FFO growth tail off even earlier than that. The best growth potential for FFO is in the small- to mid-cap REITs. He focuses on FFO growth rather than size growth, because that is what is priced into the market these days. The correlation of price movement to FFO is 0.73, while the correlation to real estate size is only 0.41.

Many larger REITs have established a record of high growth in FFO, largely as a result of: 1) growth from a smaller base, through acquisition and development; 2) cost-cutting via economies of scale; and 3) high rent growth in recovering property markets (as shown in Exhibit 27 of Chapter 2, rents and net income only grow at the rate of inflation over the long run.) For most of the larger REITs, these three drivers of FFO growth are becoming history.



The capital markets have arbitrated away the potentially highly accretive acquisition possibility — even the Equity Office REIT's purchase of the lower-multiple Beacon Properties portfolio was at a fairly large premium to NAV. Mueller cautions that, “the spread in FFO multiples between larger-cap and smaller-cap REITs is narrowing so that the future REIT acquisition pickings for managers like Sam Zell will be slim. When the first giant REIT has a problem with a quarter of less-than-expected growth, it is likely that the thud will be rather loud.”

Essentially, sheer size ultimately forces a slower rate of growth in asset-based securities such as REITs. Put another way, the pricing of most REITs today is at a 6 percent dividend yield, with the expectation that growth will continue at 10 percent to 12 percent, or with a total return of 16 percent to 18 percent. How many properties are there today that can be purchased with reasonable leverage and achieve greater than a 16 percent to 18 percent IRR? As growth rates slow, REIT share prices will have to readjust so that more of the return comes in the form of dividends. At that point it will be difficult to issue very much new stock to maintain growth.

Finally, Howley (1998) brings conventional corporate strategy analysis to the argument. He points out that the key is in looking at barriers to entry by competitors, suppliers, or customers. While oligopolistic industries, such as cars or jet engines, take capital and expertise, there also is the need for technical know-how, global logistics, proven products and brand loyalties — all significant barriers to entry for new competition. Real estate firms, regardless of their size, find it virtually impossible to stop new development, even by well-capitalized new competitors. Dallas, for example, is already seeing a surge in new construction of office and industrial properties, much of it done by small, non-public companies. There always will be room for entrepreneurial firms to get a foothold, except perhaps in large-scale malls or hotels.

In conclusion, REITs possess neither the continuous economies of scale, nor a large enough pool of underpriced assets to acquire at rates accretive to FFO earnings growth, nor to present any real barriers to entry to new real estate entrepreneurs. Mega-REITs will not be taking over the world any time soon.

Public Market Pressures Vs. Private Investor Objectives

From time to time, the popular consensus will put pressure on REITs to follow certain strategies in order to maximize their stock price multiple of earnings. Currently, this requires investors either to accept these market pressures, or to turn to private market alternatives.

■ Leverage

The public markets abhor leverage, due to the foreclosure risk experienced in the early '90s real estate crash. Should investors wish to boost returns in today's more balanced property markets with the more aggressive use of leverage, they must turn to private opportunity funds or to directly owned real estate.

■ Portfolio management

Each metropolitan area has a distinct market cycle for each property type, with varying correlations to other geographic areas. This presents an opportunity for buying and selling that can take advantage of the different cycles. Yet, Wall Street currently prefers management to have a focused strategy, believing that maximum expertise will be obtained when investing in one property type over a limited geographic range (though there are some exceptions). As a result, the public market investors who wish to play these cycles must do so by switching in and out of the stocks, and should hire portfolio managers who understand both the securities markets and the underlying property markets. Private investors, on the other hand, must hire expertise only in the property market cycles.

■ Value-added Strategies

Wall Street tends to focus very intensely on quarter-to-quarter earnings comparisons. As a result, it is difficult for public REITs to engage to any great degree in new development or rehabilitation of older properties, because of the long period of time when there are no current earnings. Yet, the price appreciation returns that are possible with such strategies can greatly outweigh the returns from current operating properties. Thus, investors wishing to focus on value-added strategies must currently turn to the private markets.



How these public market pressures will change over time is difficult to foresee, but the private markets always should allow investors to pick and choose their strategies without having to fight pressures from the popular consensus.

1993–97 Market Action Raises Warning Flags

The 1990s bull market in domestic stocks has been unprecedented. There has been nothing but minor price corrections since it began in 1982. Even the crash of October 1987 resulted in only temporary damage, and, though very unsettling at the time, has come to be viewed as an example of the kind of buying opportunity to take advantage of in the future. Few people seem very concerned about risk any more. Never before, since the beginning of the data in 1905, have stocks traded at more than 25 times trailing earnings — not even in 1929. Obviously, this enthusiasm has a spillover effect on all publicly traded securities, even on REITs, although the property markets had a most disastrous down-cycle not too many years ago.

When times are good, Wall Street tends to create stories to explain why everything is up and will continue to be so. At a recent institutional conference, a major real estate mutual fund manager claimed that REIT returns would equal S&P returns over time — REITs have better management and lower operating costs. It was “unfair” to compare them to private real estate investing. Yes, the market is buying into the “value of management” story, hence the willingness to pay more for the REIT than the property is worth. Yet, how smart are these managers really — these same managers who were forced to turn to the public markets for financing when they got trapped in the last property market bust? Perhaps the smart money is selling to REITs. As one major southwestern developer put it recently: They’re now in the business of building and selling “REIT food.”

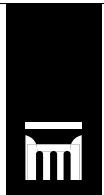
Back in Exhibit R-2, we illustrated the huge financing wave that Wall Street has brought to the real estate industry. The result is that the 200 companies in the REIT universe bought \$47 billion of property or portfolios in 1997, representing one-third of all income property transactions in the United States last year, and

measuring three times as much as the highest annual rate that pension funds were guilty of crowding into during the mid- to late-'80s. Such a bulge of buying pressure has had an effect on the capital markets. Property cap rates are falling, perhaps to lower levels than what is being recorded in the National Real Estate Index. In fact, in order to justify current NAV levels, one major Wall Street analyst used the cap rates paid by REITs as the basis for valuing the entire portfolio! It was unclear why the high price paid for the last property somehow made the entire portfolio worth as much. This game of numbers is a self-fulfilling, upward spiral.

Vogel (1997) puts a more rational face on the factors behind the REIT boom of the '90s. He sees six major factors.

- The disappearance of conventional capital sources forced the historically private real estate players into the public markets, the only viable source of capital.
- Most of the players were overleveraged and desperately needed equity capital to pay down their debts.
- There was plenty of property available for REITs to buy, as the insurance companies and banks were under tremendous regulatory pressure to reduce the property and mortgage portions of their balance sheets.
- The extraordinary growth in mutual funds — rising from \$371 billion in 1984 to \$2.16 trillion in 1994 — has challenged fund managers to find suitable investments, and they have been attracted to the high dividend yield of REITs, especially when they have been tied to a growth story.
- The poor performance of commingled private funds has shifted a lot of pension fund money into the public REIT markets.
- The Tax Reform Act of 1986 removed the incentive for private individuals to invest through limited partnerships, thereby improving the relative attractiveness of REITs for those investors who wanted to own real estate.

Interestingly, all of these reasons for the REIT boom have all been external — not at all the result of superior property operating performance.



True, REITs have enjoyed rapid growth in earnings, the stuff of which high multiples are made on Wall Street. But, it is our view that this also is the result of one-time factors, not a permanent state of life.

- The recovering property markets have produced rapid income growth. However, the normal growth rate is equal to the rate of inflation (see Exhibit 27 in Chapter 2) and the current rate of inflation is around 2 percent. Rent growth in excess of inflation results in net income growth that is faster than the rise in replacement costs — a formula that induces new construction to bring markets back into balance and thereby reduce rent growth back to normal inflation levels.
- There have been operating cost savings as REITs have spread overhead over a larger asset base, and as managers have learned to take advantage of economies of scale.
- There have been terrific opportunities to buy properties at a discount from replacement cost, or at income yields higher than those paid out by REITs. This happens as the real estate industry recovered from its boom–bust cycle.
- There have been opportunities to reduce the costs of debt, both by moving away from mortgages to uncollateralized corporate debt and by riding the falling interest rate market.

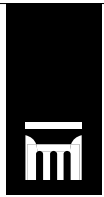
None of these four factors behind the 1990s' FFO growth is intrinsically sustainable. In fact, all of them may have just about run their course. REITs soon may begin to readjust to the lower-growth, higher-income investments that they once were. Before the days of growth investing, REITs simply were good income-earners. As shown in Exhibit R-20, prior to the “New Era” in REITs (1993), 70 percent of the REIT Index return was from income. (In this chart we have used the Wilshire REIT Index returns since 1978 in order to normalize performance, by removing the above-normal returns in the period immediately after the IPO, since the Wilshire REIT index does not include new issues until the quarter after the IPO.) Whereas, going forward, the February First Call consensus growth forecast of 9.5 percent puts the REIT total return at 15 percent, with the 5.5 percent dividend providing only 37 percent of the return.

Exhibit R-20			
	Annual Income Return	Annual Appreciation Return	Total Annual Return
NAREIT 1972–77	8.6%	(1.0%)	7.5%
Wilshire 1978–90	9.2%	4.5%	14.1%
Prior Era 1972–92¹	8.9%	3.4%	12.7%
New Era: 1993–97²	7.0%	9.1%	15.5%
1998 Consensus	5.5% ²	9.5% ³	15.0%

¹ NAREIT 1972–77, Wilshire 1978–97
² NAREIT Dividend Yield
³ First Call Consensus FFO Growth Forecast

Probably the most important reason for breaking the periods into pre-1973, and 1973–77, is found back in the chart in Exhibit R-7, where REIT dividend yields in 1993 clearly broke away from their previously close relationship with property yields. This was when REITs began to trade significantly above their net asset, or property, value. As noted in Milken (1997), such premia to NAV are eventually arbitrated out of the market by people bringing property to the public market to take advantage of such superior pricing, until the supply of stock is too great for the capital markets to absorb, and prices fall back to or below NAV. Further, in the more established property share markets around the world (as compared to the U.S. market which is just evolving), there always are times when shares trade at discounts to estimates of underlying value.

The implications of a return to more normal property-level income growth, particularly for the mega-REITs which eventually will grow beyond their ability to maintain high FFO growth, is via a substantial repricing of shares. If property income growth falls to inflation levels of, say 3 percent, and if, with modest leverage and some management skill in redeploying assets to better markets, REITs can bring that level up to 5 percent (which is already higher than the 3.9 percent annual growth in REIT income from 1975-93), and if the capital markets still want to achieve total returns of, say, 14 percent, the implied dividend yield is 9 percent. To get there, today's 5.5 percent REITs would have to decline 39 percent in share price. Of course, there is probably enough earnings momentum from prior acquisitions and from still-recovering property markets, that we won't see such a



sudden slowing of growth. Rather, it will probably take two or three years, during which time REIT shares can gradually readjust to the more stable long-term pricing algorithm. Maybe REIT shares only have to decline 20 percent over that period. Who knows?

Summary and Conclusion

Publicly traded REITs have undergone a transition from the once-small niche played by private individual investors to today's full-fledged industry status that attracts the attention of institutional investors and more than 60 mutual funds dedicated to real estate investments. Yet, it appears that despite much of the accompanying hype that REITs have solved all of their former problems, they still are far short of the perfectly liquid, fully aligned interests and pure real estate play that institutions — burned by their commingled fund experience in the early '90s — would dearly love to embrace.

In the long run, REIT returns indeed do appear to be driven by underlying property market forces. As such, REITs can be a substitute for private real estate investments if: 1) they are held for the long-term (through bull and bear markets); and, 2) the initial investment is at share price levels that reasonably approximate the underlying portfolio property values.

The superior performance of REITs versus the NCREIF Index for private property investments from 1975–93 (15.3 percent vs. 7.9 percent) can be explained largely by REITs' use of leverage (3.7 percent incremental return) and the expansion in their price-to-income multiple relative to the expansion in property cap rates (2.4 percent incremental return), leaving only 1.3 percent in incremental return to be explained by the differences in property types, locations, strategies and management talent.

However, REITs also should carry a product warning stating that, from time to time, they can exhibit characteristics remarkably similar to small cap-stocks. In summary:

- While the **correlation** with the stock market has declined in recent years, so has those of other stock market industry groups. Over time, correlation coefficients

tend to average out at higher levels as they shoot back up during bear markets.

- **Volatility**, or standard deviation of return, also has tended to decline for many industry groups in this prolonged bull market, but such volatility measures tend to rise dramatically during bear market conditions.

- Average REIT **liquidity** is still less than that of an average Russell 2000 small-cap stock. Given the trading volume of a typical REIT, most institutions may find it much easier to liquidate a \$100-million property portfolio than to sell a similarly-sized position in a single REIT.

Further, agency problems have not gone away, given the fact that half of the market value of all REITs is in the UPREIT format, and given the increasing use of subsidiaries and paper-clipped corporation formats to get around the issue of non-qualifying income. Investors still must rely upon diligent management oversight, preferably by a strong, independent board of directors, to ensure that shareholders' interests will be fully served.

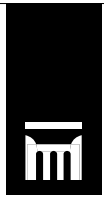
Arguments that REITs will come to dominate the real estate industry begin to fade when one examines the reasons for the tremendous explosion in REIT capitalization in recent years — primarily reasons external to REITs — and when one realizes the difficulties REITs face in maintaining high FFO growth as overall size increases.

For investors wishing to employ: 1) more leverage than the typical 30 percent to 40 percent used by REITs; 2) strategies to profit from local property market cycles; or 3) property development or other value-added strategies to improve on real estate investment returns, the private markets still provide superior opportunities and flexibility to the options offered by public REITs.

Finally, there is the potential for a price decline of 20 percent to 30 percent in REIT shares, should the market be disappointed in its belief that FFO growth is greatly in excess of underlying property income growth. If REIT managers are unable to deliver on this implied promise, REIT shares once again will trade closer to NAV, and dividends again will become the primary source of REIT returns.

A large, light gray graphic of a classical building facade with three columns and a pediment, centered on the page. The text is overlaid on this graphic.

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