Lend Lease
REAL ESTATE INVESTMENTS

THE CASE FOR REAL ESTATE

FIRST QUARTER 2002

EXECUTIVE SUMMARY

As 2002 begins, investors everywhere confront a rapidly changing landscape. The long global expansion of the 1990s, led by a record 10-year growth period in the United States, has been replaced by the first synchronzied global economic downturn in a generation. And, on top of this cyclical change in the economic winds, the September 11th terrorist attacks on New York and Washington, D.C. have added to the instability and economic risks.

In this context, investors are re-evaluating their investment goals and reviewing their strategies. As the high-return boom years fade, a thorough re-thinking of each asset class's position in an investment program is appropriate.

In the current environment, real estate has renewed attraction for many investment programs. In the past decade, it has developed into an asset class with viable investment choices in all four quadrants:

1. Private equity real estate remains a prime vehicle for direct control of property investments.
2. Public equity markets have grown substantially, especially since 1992 with the development of new Real Estate Investment Trust (REIT) formats, and have now "come of age" with the inclusion of REITs in Standard and Poor's 500 index.
3. Private debt through mortgage vehicles has been stengthened by stronger underwriting standards.
4. Public debt markets, especially Commercial Mortgage Backed Securities (CMBS), have broadened and deepened.

In sum, real estate in the 1990s developed a sophisticated relationship with all aspects of the capital markets, and in addition saw the ownership of both equity and debt migrate from local to global capital pools. At the beginning of the new century, real estate provides a very different asset class profile than it did a mere ten years ago.

Real estate remains an integral component of contemporary mixed asset portfolios providing portfolio managers with five important characteristics:

- **high risk-adjusted returns,**
- **competitive nominal returns,**
- **low performance correlations with other asset classes,**
- **lower volatility than other asset classes, and**
- **a hedge against unexpected inflation.**

Consequently, real estate can be an effective tool in a sophisticated portfolio management strategy. When appropriately managed, real estate investments provide both high risk-adjusted returns and portfolio diversification for institutional investors. And real estate can be utilized under a variety of investment styles — ranging from core to opportunistic.

INTRODUCTION

Pension funds began to include real estate as part of their investment programs in the mid-1970s, a change stimulated by two major events:

- First, passage of the Employee Retirement Income Security Act (ERISA), also known as the Pension Reform Act of 1974, which required diversification as part of the "prudent man" rule and mentioned real estate as a potential means of diversifying a portfolio.
- Second, both stocks and bonds posted negative real returns for a number of years during the inflationary era between 1965 and 1974.

Pension managers searching for investments that performed well in an inflationary environment and met the "prudent man" tests mandated in ERISA began to include modest amounts of real estate in their investment portfolios. Allocations to real estate became more substantial in the 1980s. Today, commercial real estate is a $4.3 trillion industry, with institutional capital constituting nearly half of that market. (The ratio of equity to debt is 1:4.)

As institutional interest in property increased, the overall real estate industry underwent a series of important changes. The most significant was development of robust public debt and equity markets. During the initial period of institutional investment in real estate, the private debt and equity markets were well developed; but public equity was restricted to an anemic Real Estate Investment Trust (REIT) sector, and public real estate debt was limited to the residential mortgage secondary market. By contrast, an institutional investor accessing real estate markets in 2001 can choose among a variety of products and investment styles in all of the investment quadrants.

Traditionally, both attractive total returns and portfolio diversification have been important reasons for investing in real estate. They remain the most important motivations.

Real estate's role as a stable producer of relatively high and predictable cash yields becomes increasingly attractive with an overall economic slowdown and return levels falling and volatility levels rising in other asset classes.

Going forward, economic and real estate conditions, along with several underlying and evolving structural trends, offer institutional investors a compelling case for continuing and increasing allocations to real estate.

Structural Changes

The late 1990s witnessed a confluence of structural trends in the economic, financial, and demographic environments. Securitization mandated Wall Street-style information transparency and accountability for underwriting and investment management practices for all real estate players, suggesting a faster response to supply and demand imbalances. Technology has enhanced access to data, information, and analysis; and has provided underpinnings for evolving securitization and globalization trends in the investment arena. Furthermore, the growth of technology will force the real estate industry into a more open information environment. As a result, some of the factors that made real estate a management-intensive investment will be mitigated.

Market Conditions

Market conditions change over time, and real estate is not immune. But the case for real estate as part of a diversified portfolio is strengthened when contemporary conditions are contrasted to a decade ago when declining economic indicators and excess supply led to very poor real estate performance. Today, real estate is well positioned to deliver solid performance as well as portfolio diversification. Most core properties exhibit high current returns, solid multitenant rosters, disciplined borrowing practices, moderate levels of competitive new construction, and attractive relative pricing. Value enhanced and opportunistic investment strategies, while accompanied by increased risk, also benefit from the generally sound fundamentals that define the current property markets in a time of economic flux.

Investment Quadrants

A decade ago, because of lack of available products in the public markets, virtually all institutional property investment was restricted to either private equity or private debt. This changed dramatically during the late '90s, and real estate has developed a track record of excellent performance in all quadrants.

- Private Equity: Equity real estate investments offer very solid returns and exhibit low correlation with other asset classes, which allows real estate to achieve an enhanced risk-adjusted return in a mixed-asset portfolio. Historically, core real estate has offered total returns between 8% and 10%; but in recent years, returns have exceeded those averages. In the stock market, much of the return is based on appreciation; whereas real estate returns have a heavy and stable income component.
- Public Equity: REITs, or real estate investment trusts, are the public side of equity real estate. REITs provide investors more liquidity than private equity real estate, as well as solid cash returns and an effective diversification option in relation to the broader equity market.
- Private Debt: Mortgages or whole loans provide fixed-income investors an alternative to Treasuries and corporate bonds. On average, commercial mortgages provide spreads over Treasuries ranging between 150 and 200 basis points. Commercial mortgage investing attracted increased interest as delinquency and default rates have dropped near historical lows.
- Public Debt: CMBS, or commercial mortgage-backed securities, are commercial real estate mortgage loans that are pooled together and traded on public markets. Although still a fledgling market, CMBS provide solid income returns, in addition to more liquidity than standard mortgages.

Diversification and its Role for Real Estate

By reducing risk in a well-diversified portfolio, real estate can play an important role in an investment program. Private and public equity real estate have historically demonstrated very low correlations with the broader equity and bond markets. Real estate's low correlation derives from its nature as a physical, income-generating asset generally enjoying multiyear contractual rent streams. As such, it is less subject than other asset classes to the fluctuations of investment markets.

Mortgages and CMBS are more closely tied to the performance of bonds and other fixed-income instruments. As the overall stock market has declined in recent months, the attribute of low correlations has become increasingly important for portfolio managers.

Recession, Inflation and Real Estate

In the current unstable economic environment, investors and advisors are understandably concerned about the viability of an investment strategy in either inflationary or recessionary periods.

Although institutional real estate is not immune to the effects of a recession, it is a very stable asset class that continues to provide cash flows even in times of economic downturn. Historical data show real estate performing well during recessions when overdevelopment has been absent. In today's challenging market environment, cyclical declines in demand are weakening several property sectors, but a reduced supply pipeline in most property types augurs well for a strong rebound when the economy rights itself. In short, while not immune to market fluctuations, real estate is far better positioned to weather either an economic slowdown or a recession than was the case a decade ago.

Inflationary threats have been in check over the past decade, but that does not mean that inflation has disappeared forever. In inflationary periods, real estate performs very well as a hedge. In addition to being a "real" asset (as opposed to a monetary one) that does not get eaten away by increases in the CPI, inflation adjustments in lease contracts offset inflationary impacts.

REAL ESTATE AND THE INVESTABLE UNIVERSE

Modern portfolio theory teaches that an investment strategy will, over time, produce the best risk-adjusted returns if it mirrors the diversity of the underlying economy in which the investments are being made. The specific levels of allocation to different asset classes will vary, depending upon the specific goals of the investor. But the underlying principle of creating a portfolio that reflects the diversity of the overall economy remains. It is therefore important to understand the size and nature of real estate investment in the United States, so as to determine how, and to what extent, real estate should be included in a specific portfolio investment strategy.

As reflected in Figure 1, the entire U.S. investable capital market was estimated to be approximately $68 trillion as of the end of 1999, although sources vary widely. The real estate universe is difficult to estimate precisely, but it is approximately $4.3 trillion, or 6.3% of the total investable universe. The real estate market has grown, through a combination of development and asset appreciation, by about $1.3 trillion over the last five years. Of the $4.3 trillion real estate universe, about $2.4 trillion is owned by such non-institutional sources as government agencies, corporate owners, and individual investors.

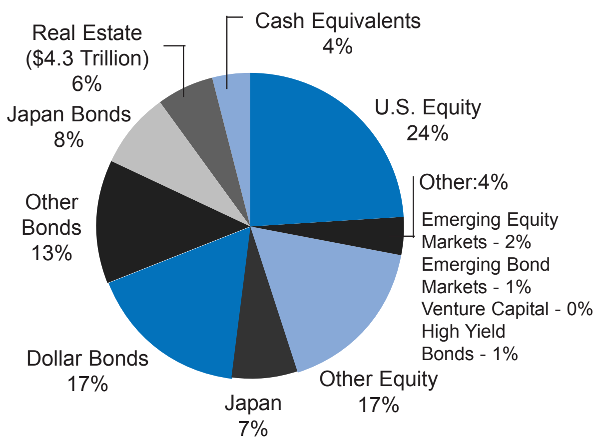
Approximately $2 trillion of the total real estate investment pie is held by institutions: REITs, savings institutions, commercial banks, insurance companies, and pension funds. Institutional equity investment is dominated by pension funds and REITs, each with close to 40% of the total $372.7 billion investment universe, as shown in Figure 2. Debt is more broadly spread across the various categories of institutions, with pension funds still playing a minor role (see Figure 3).

Many portfolio strategists contend that a multi-asset investment portfolio should represent the total investable universe, which leads to an optimal real estate allocation in a range of 5% to 8%. When an asset allocation strategy indicates that real estate should be overweighted, institutional portfolios may have 10% to 15%. However, current pension investment in real estate is very conservative, with the average allocation to property falling slightly below 4%.

FIGURE 1

TOTAL U.S. INVESTMENT UNIVERSE

Total Universe = $68.1 Trillion, Year-end 1999

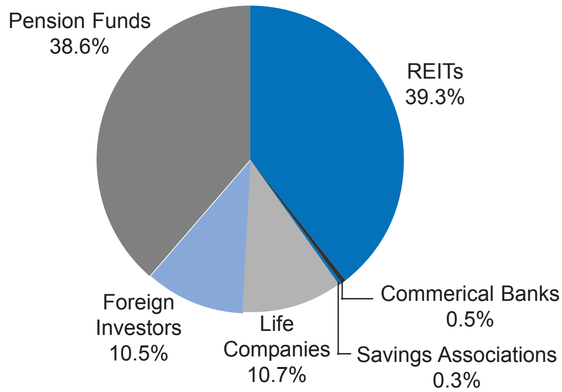


Sources: UBS Brinson Partners, Rosen Consulting Group

FIGURE 2

INSTITUTIONAL REAL ESTATE - EQUITY

Total Universe = $372.7 Billion, Year-end 2000

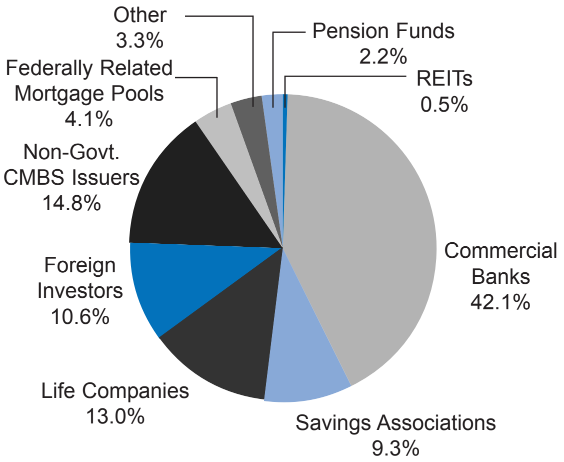


Source: Rosen Consulting Group

FIGURE 3

INSTITUTIONAL REAL ESTATE - DEBT

Total Universe = $1.68 Trillion, Year-end 2000



Source: Rosen Consulting Group

One of the historical difficulties faced by pension funds hoping to invest in real estate was the limited range of investment vehicles. Until the 1990s, most real estate investment occurred in the private market, as the public debt and equity real estate markets were very small and illiquid (with the exception of Fannie Mae and Ginnie Mae). Private debt and equity markets were large and robust, but they lacked transparency and provided little liquidity — thus requiring significant expertise on the part of an investor.

In the 1990s, however, active public debt and equity markets supplemented the traditional private modes of property investment. The development of Commercial Mortgage Backed Securities (CMBS) allowed for real estate debt investment that could be as varied and sophisticated as investment in corporate bonds. In addition, expansion of the modern Real Estate Investment Trust (REIT) market after 1992 enabled institutions to invest in a more liquid and transparent form of real estate equity.

These developments have placed real estate on an equal footing with other investments in terms of product availability. **It is now possible to construct a real estate investment program in which public and private debt and equity are all used to further investment goals. In real estate, as in other types of assets, each of the quadrants has a specific investment profile and a well-defined strategic role.**

Private equity commercial real estate represents a substantial portion of the investable universe, with a market capitalization of approximately $237.2 billion. The largest source of private equity investment is pension funds, which have invested approximately $141.9 billion and therefore have captured nearly 60% of the institutional quality real estate market.

Private equity has been the traditional focus of mixed-asset portfolios with real estate positions. The private real estate equity market is highly diverse and consists of numerous product types. An investor can choose among commercial office properties, industrial space, retail centers, multifamily communities, or a mixed-asset portfolio with any combination of these products.

Investors also have the option of tapping into the market at various risk/return levels, ranging from high quality or "core" real estate to higher yielding, but riskier, "value enhanced" and "opportunistic" strategies. The definition of these investment styles varies, but generally corresponds to the following:

Core: Class A office space, super regional malls, new-age industrial research parks, and apartment complexes in high-income neighborhoods all qualify as core real estate. Typically, core properties are newer, larger, better located, filled with higher-credit tenants, and are held free and clear or carry modest debt (under 30%).

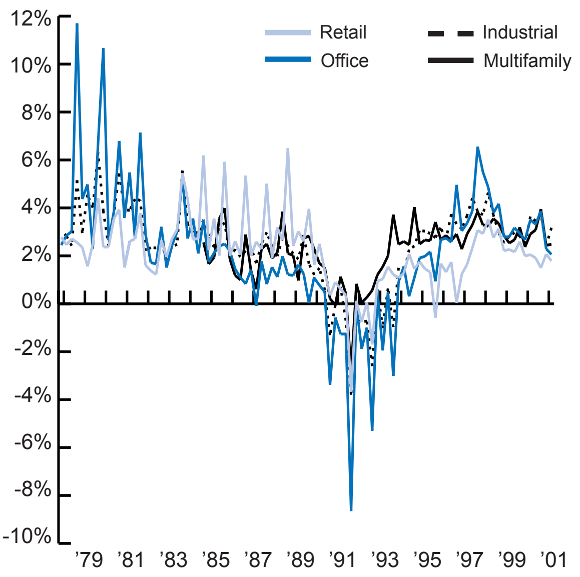
Value Enhanced: Properties of any type that can be developed, redeveloped, or repositioned to provide above-average returns for the property class. Alternatively, core properties with 50% or more leverage are classified as value enhanced.

Opportunistic: Distressed properties that can produce exceptional returns under a successful turn-around strategy — but at the highest levels of risk. Leverage averages 80% under this approach.

There is additional real estate investment opportunity in specialized products such as senior/assisted living communities, health care facilities, hotel and gaming properties, self-storage warehouses, land investments, and numerous overseas real estate vehicles.

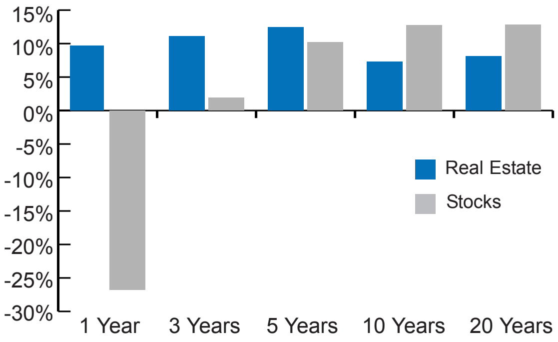
Private commercial real estate equity investments can take several forms. Assets can be held individually, in multi-asset portfolios, or through commingled funds. Whatever the vehicle, private equity real estate is a complement to standard debt and equity investing. Investment in real estate offers opportunities for portfolio managers to gain stable returns at reduced levels of risk. In absolute terms, real estate's returns are lower than stocks' but at significantly lower levels of risk.

FIGURE 4
NCREIF RETURNS BY PROPERTY TYPE



Sources: ACLI, Federal Reserve, Rosen Consulting Group

FIGURE 5
REAL ESTATE VS. STOCKS RETURNS
period ending 3Q'01

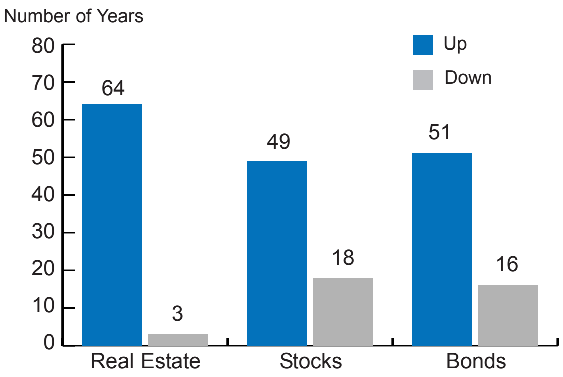


Sources: NCREIF, Bloomberg, Rosen Consulting Group

The benchmark for measuring private real estate equity returns is an index compiled by the National Council of Real Estate Investment Fiduciaries (NCREIF). The NCREIF index measures the total, unleveraged return for institutional grade real estate contained in the portfolios of contributing members, and it effectively reflects the universe of institutional grade private equity real estate (see Figure 4).

Examination of historic risk/return data for both the S&P 500 and the NCREIF indices shows that, over the last 20 years, the broad equity market has offered annual returns of 14.0%, with a standard deviation (or volatility) of 14.4%. During the same time period, as reflected in Figure 5, real estate equity has offered annual returns of about 8.3%, but with a significantly lower volatility of 3.3%.

FIGURE 6
"UP" AND "DOWN" YEARS FOR REAL ESTATE, STOCKS AND BONDS: 1934-2000



Sources: Bailard, Biehl & Kaiser, Inc., Institutional Real Estate, Inc., "Why Pension Funds Should Invest in Real Estate", 1997 as updated by Rosen Consulting Group, 2000

FIGURE 7
RETURNS AND VOLATILITY 1996-2000

	Returns	Volatility
NCREIF	12.7%	1.4%
S&P 500	18.3%	16.2%

Sources: NCREIF, Bloomberg, Rosen Consulting Group

During the period 1934-2000, as shown in Figure 6, the S&P 500 exhibited negative annual returns 18 times (over 26% of the years), compared to only three years (4% of the time) of negative returns for real estate. Consequently, although the stock market can be attractive to "market timers," it has been a much less reliable source of returns than private equity real estate. The latter is a slower but steadier investment vehicle.

Over the past five years, as reflected in Figure 7, real estate has shown average annual returns of about 12.7%, with an extremely low standard deviation of 1.4%. On the other hand, equities during this boom period for stocks averaged about 18.3%, with a volatility of 16.2%.

Real estate's low volatility is no surprise. The contractual nature of the underlying income stream contributes to stable earnings and accounts for the bulk of a real estate investment's overall return. This cash flow, in turn, produces more stable valuations as compared to equities.

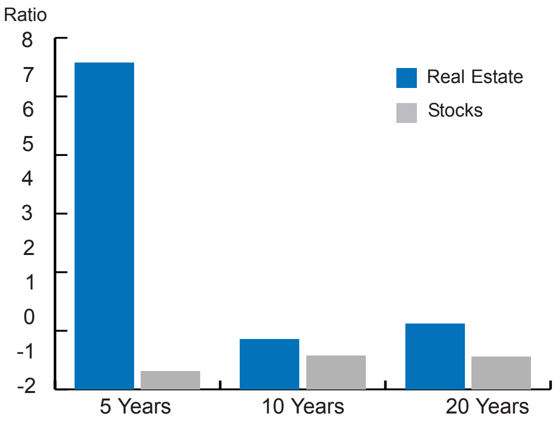
In addition to analyzing return data, portfolio managers attempt to assess returns in light of the accompanying risk. One commonly used measure of "risk-adjusted return" is the Sharpe ratio, which measures how much excess return, over a stated yield on cash investments, can be gained for each additional "unit" of risk an investor assumes.

During the business cycle that began in the mid 1980s, private equity real estate investments offered risk-adjusted returns superior to those achieved in the public equities markets. Over the past 20 years, the Sharpe ratio for private real

FIGURE 8

SHARPE RATIOS - REAL ESTATE VS. STOCKS

periods ending 3Q'01



Sources: NCREIF, Bloomberg, Rosen Consulting Group

estate was 1.14 — nearly double the Sharpe ratio of 0.67 for the S&P 500. During the last five years, as stock markets soared, real estate's risk-adjusted return was even more compelling. NCREIF's five-year Sharpe ratio was 6.13 — more than seven times higher than that of the S&P 500 (0.86) and approximately 13 times greater than that of bonds (0.47) (see Figure 8).

Significantly lower risk, coupled with solid returns, makes real estate an especially attractive investment vehicle for portfolio managers seeking high risk-adjusted returns. In addition, real estate returns are based on relatively predictable and reliable income streams from tangible assets, whereas the strength of returns in the broader equity market is heavily dependent upon price appreciation. A review of the past 20 years shows that real estate income returns have averaged about 8.0%, whereas dividend yields for the broader equity market have averaged only 3.3%. The five-year income return comparison is even more favorable: real estate averaged 8.7%, while the S&P 500 dividend yield fell to about 1.6%. (As corporations have used cash to buy back stock instead of paying dividends, they have raised their stocks' volatility.)

To summarize, private equity real estate offers several favorable characteristics:

- **Comparatively high risk-adjusted returns.**
- **Comparatively high nominal returns.**
- **An institutional scale market.**
- **Product diversity.**
- **Stability of returns based on contractual lease payments.**
- **Comparatively low volatility.**

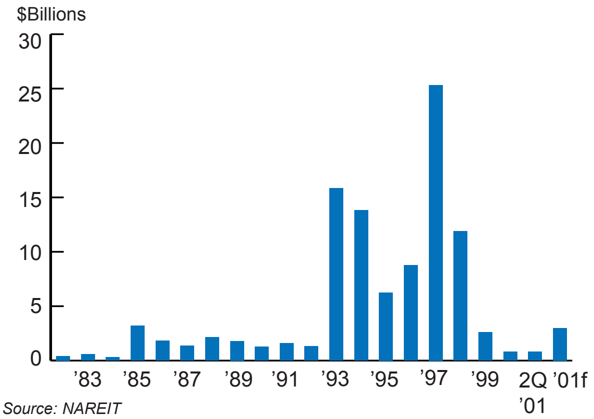
Private equity real estate has drawbacks as well. It is relatively illiquid, which can be especially troublesome in declining markets. There are also difficulties in accurately assessing market values; and much of the publicly available data about the property markets is of uneven quality. These issues recessitate an intensive financial management profile, which is accompanied by more hands-on asset management requirements than are customary in other asset classes (or in public equity real estate investments for that matter).

Nonetheless, given the performance advantages of high nominal and risk-adjusted returns, as well as the potential portfolio diversification benefits that real estate provides, private equity real estate can be a compelling addition to a diversified mixed-asset portfolio.

The emergence of numerous, large real estate investment trusts (REITs) during the 1990s created a viable public equity property market for institutional investors. REITs present an alternative to private equity investing and can bring a superior level of diversification to mixed-asset allocations. The public REIT universe has grown to 158 companies with a market capitalization of $140 billion as of mid-year 2001. If we add in the leverage of these REITs, as well as the value of operating partnership units (non-trading shares taken by the founders when the REITs were formed), today's REITs control about $275 billion of real estate.

The "Modern REIT Era" began in November 1992, with the initial public offering of Taubman Realty, which was structured to allow private equity real estate to be placed into a REIT format without immediate tax consequences to the original owners. As other private owners took advantage of the REIT structure to enhance their access to capital (see Figure 9), nearly $100 billion of new equity was issued in the REIT market between 1993 and 1998.

FIGURE 9
EQUITY REIT OFFERING VOLUME



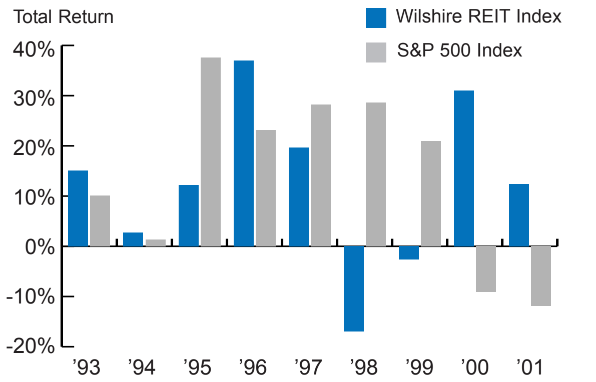
Source: NAREIT

The newer REITs are fundamentally different from pre-1992 REITs: they hold higher-quality real estate in their portfolios and are typically run by managements with several decades of experience in developing, acquiring, and operating real estate. Furthermore, the newer REITs are generally fully-integrated real estate operating companies and are much larger than their predecessors, with average market capitalization near the $1 billion level. **In 2001, the Standard & Poors listing committee included two REITs in the S&P 500 Index, and placed several others in the mid-cap and small-cap S&P indices. Analysts noted this as a sign of the group's growing acceptance within the investment community.**

REITs have become attractive to diversified portfolio investors for a number of reasons. Technology, plus the oversight and market analysis that accompany securitization, have increased the transparency, security, and liquidity of the investment vehicle. Public markets and daily pricing provide investors with a liquid asset — and therefore a more manageable total portfolio because real estate investments can be tailored to portfolio goals. The transparency of the REIT market provides an additional level of investment security. Yet the underlying physical properties and the contractual rental streams are real assets that provide investors with a high degree of capital protection.

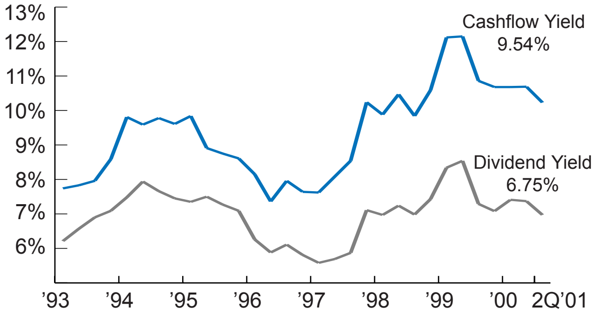
REITs offer an unusual total return profile to public equity investors: very strong dividend payments, plus any appreciation or depreciation. Among industry groups, REITs dividend payouts are among the highest, primarily because a real estate company must pay out 90% of its taxable income in dividends to investors to qualify as a REIT.

FIGURE 10
INVESTMENT PERFORMANCE REITS VS. S&P 500 INDEX



Sources: Standard & Poor's, NAREIT, Rosen Consulting Group

FIGURE 11
REIT YIELD COMPARISON
REIT CASHFLOW YIELD VS. DIVIDEND YIELD



Source: Merrill Lynch

To some extent, REITs act as hybrid securities, providing the strong cash flow advantage of bonds along with an equity's opportunity for capital appreciation. REITs have performed well — producing an 11.2% average annual total return over the past 20 years. In the more relevant post-1992 period, the S&P 500 outperformed REITs; but REIT returns continue to exceed those of small cap stocks, bonds, and international equities.

REITs have been particularly strong performers since late 1999. As Figure 10 shows, REIT total returns rose to 31.0% in 2000, compared to a 9.7% contraction for the S&P 500. Positive performance continued into 2001, reflecting the strength of real estate market fundamentals, as well as a capital flow into REITs from other weakening equity assets.

As an income vehicle, REITs are especially attractive. Over the past 20 years, REIT dividend returns have averaged 8.3%, compared with only 3.3% for the broader S&P 500 Index. Dividend performance over the last five years, which comprise the modern REIT era and featured rising equity valuations, reveals an even greater disparity: REIT dividends averaged 7.4% and the S&P 500 averaged 1.6%. As evident in Figure 11's yield graphic, REITs also have a high average cash flow yield of 9.5%. This implies an average dividend payout ratio of over 70%, which is low by historic standards and provides comfort as to the safety of this important source of investment return.

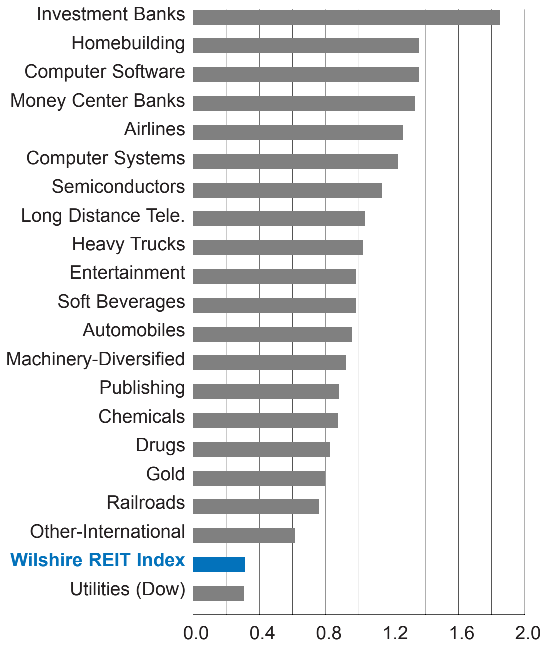
REIT cash flow yields represent a more than 500-basis-point spread relative to the 10-year Treasury bond. The spread has increased dramatically over the past three years and remains high, reflecting both the underlying strength of the real estate

FIGURE 12
LOW CROSS CORRELATION OF RETURNS OFFERS DIVERSIFICATION BENEFITS
1Q'93-2Q'01

	Wilshire REIT Index	Wilshire 5000	S&P 500	Russell 2000	10-Year Bond	NASDAQ
Wilshire REIT Index	1	0.21	0.19	0.35	0.12	0.03
Wilshire 5000		1	0.99	0.93	(0.15)	0.89
S&P 500			1	0.89	(0.12)	0.84
Russell 2000				1	(0.08)	0.79
10-Year Bond					1	(0.23)
NASDAQ						1

Sources: Wilshire REIT, Standard & Poor's, Bloomberg, Federal Reserve, Rosen Consulting Group

FIGURE 13
BETA VS. S&P 500



Sources: Standard & Poor's, Bloomberg, Rosen Consulting Group

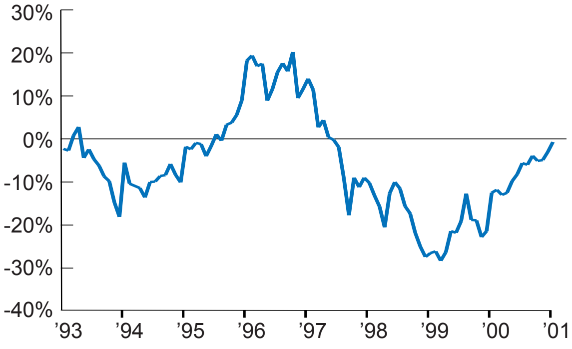
markets and the valuation gap created when REITs were overshadowed by competing growth-oriented investments. The valuation gap persists today.

Finally, REITs exhibit low correlations with virtually every other asset class, as reflected in Figures 12 and 13.

In the relatively short history of the modern REIT, they have traded in a range of ±20% of Net Asset Value (NAV) (see Figure 14). Although it is still too early to make definitive statements, we believe that market capitalization and NAV will converge as the market matures and investors focus on REIT performance in a variety of economic environments.

Just as with private equity there are drawbacks to public equity real estate. The market for many REITs is thin, which limits liquidity. Reporting, while much more transparent than in private investment, is nonetheless bedeviled by difficulties in defining profitability for a public real estate company. And given the prominence of individual entrepreneurs in leadership positions, there are questions of governance and alignment of interest. However, most of these issues are diminishing in significance as the modern REIT era — which began less than a decade ago — becomes established. As income becomes more important to investors in an altered economic climate, REITs dividend yields and low levels of volatility make them an increasingly attractive investment alternative.

FIGURE 14
REIT VALUATION
PREMIUM/DISCOUNT TO UNDERLYING ASSET VALUE



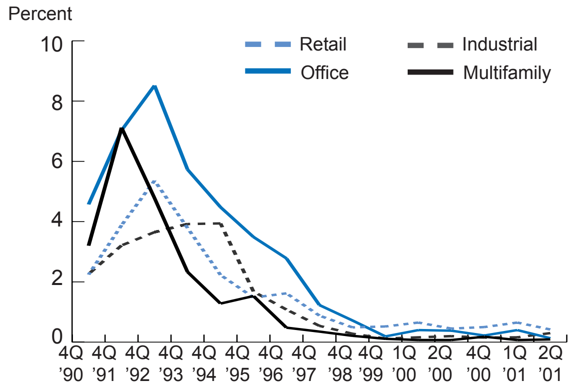
Source: Green Street Advisors

Commercial mortgages (or whole loans) provide institutional investors with the opportunity to access real estate from the debt side. As an asset class, commercial mortgages are an attractive alternative to most fixed-income vehicles. The size of the commercial mortgage market is about $1.3 trillion, constituting nearly 30% of the entire real estate investable universe. Consequently, it warrants consideration by portfolio managers.

The largest issuers of commercial whole loans are banks, life insurance companies, and savings institutions; together they comprise over 50% of the capital going into real estate debt markets.

Today's commercial mortgage products offer institutional investors a range of options to match their strategic goals and objectives. In the past, the whole loan market was characterized by long-term mortgages (ranging from 20 to 30 years) to fit the typical insurance company's investment horizon. Contemporary investors have varying time-frame requirements and preferences; and the commercial mortgage market has adapted by developing new products. Although long-term mortgages are still available, such borrowers as REITs and opportunity funds seek the flexibility of shorter-term loans (ranging from 5 to 10 years) and are willing to pay a premium in the form of a higher interest rate.

FIGURE 15
COMMERCIAL MORTGAGE DELINQUENCY RATES



Sources: ACLI

Mortgage loans are collateralized by the underlying property and therefore have a high level of security. In terms of risk profile, commercial mortgages are similar to corporate bonds in that they carry credit or default risk, interest rate risk, and prepayment/reinvestment risk. But the nature of the risks is different in a real estate context.

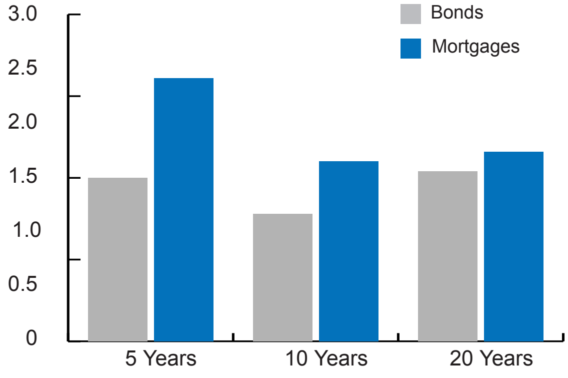
The interest rate risk associated with mortgages is similar to that of corporate bonds. However, the credit/default and prepayment risks of mortgages are decidedly different. Credit risk, which is the most important and is closely tied to the nature of the real property securing the loan, has diminished over the last decade. During the real estate crash of the early 1990s, lenders were punished for lack of discipline, as nearly 7.5% of all loans became delinquent and defaults rose to approximately 3.5%. Since then, as reflected in Figure 15, heightened levels of lender discipline (resulting in lower loan-to-value ratios) and a healthy real estate market have brought delinquencies and foreclosures down to approximately 0.3%, well below historical averages. Although delinquency rises in periods of economic weakness, the lower loan-to-value ratios common in today's property markets will shield lenders from the massive problems they faced in the early-1990s.

Yield maintenance features have become virtually universal in commercial mortgages, and they mitigate repayment risks. Residential mortgage backed securities (i.e., Ginnie Mae and Fannie Mae) do not have this feature.

FIGURE 16

SHARPE RATIOS - MORTGAGES VS. BONDS

periods ending 3Q'01



Sources: NCREIF, Bloomberg, Rosen Consulting Group

In addition to the traditional debt market risks of delinquency, default, and prepayment, mortgage lending carries an illiquidity risk not common to other forms of debt. The illiquidity derives from two sources:

1. Whole loans are not traded on any type of public exchange.
2. These debt instruments are tied to real assets that are not easily converted to cash.

Paralleling the corporate debt world, returns on commercial mortgage investments, provide solid spreads to comparable term Treasuries. However, mortgage returns are typically higher than those of bonds of equal credit standing because of the illiquidity premium for private sector real property assets.

Over the past 20 years, credit-loss adjusted average annual mortgage returns of 10.7% only slightly exceeded bond market performance of 10.4%. During this time period, the volatility of both investment classes was also very similar. However, over the last five years, returns on mortgages have averaged 7.9%, significantly outpacing annual bond returns of about 6.3%.

On a risk-adjusted basis, the performance of bonds and whole loans over a 20-year period are very similar; but again, over the past five years, risk-adjusted returns are more favorable for mortgages than for bonds. Stronger returns and lower volatility for mortgage investments yield a five-year Sharpe ratio of 1.04, more than double the Sharpe ratio of 0.47 for bonds (see Figure 16).

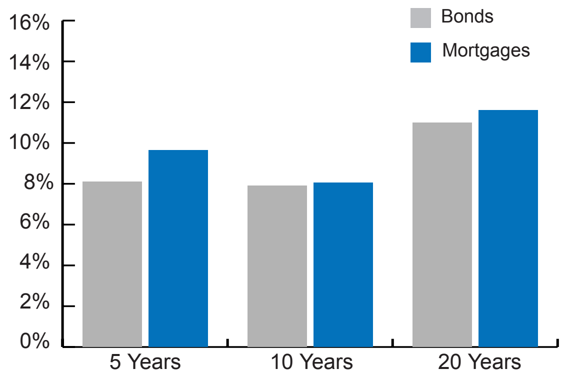
Like all private debt instruments, mortgages are primarily a vehicle for income, and are generally not held by investors for appreciation. Whether fixed- or floating-rate, lenders invest in mortgages for high coupon rates. Historically, commercial mortgage investing has offered stronger income yields than bonds and attractive spreads above comparable term Treasuries. The comparison in Figure 17 of the Lehman Government/Credit index and the Giliberto-Levy Credit Loss Index since 1980 reveals that mortgages slightly outperformed bonds.

Mortgages had an average annual income yield of 9.8%, compared to an 8.7% yield in the bond market. During the same time frame, whole loans provided an average spread of +143 basis points above Treasury yields. Over the past five years, yields of all debt instruments have fallen below historic averages; however, income yields on whole loans (7.7%) still outpace average annual bond yields of 7.0%. Mortgage spreads to Treasuries have increased substantially in the past five years, averaging about +173 basis points.

FIGURE 17

MORTGAGES VS. BONDS

periods ending 3Q'01



Sources: NCREIF, Bloomberg, Rosen Consulting Group

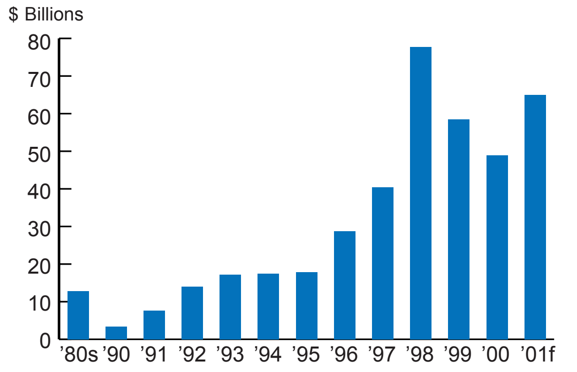
THE CASE FOR PUBLIC REAL ESTATE DEBT: CMBS

Commercial mortgage backed securities (CMBS) are the most common publicly-traded debt instrument for real estate investing. CMBS are pools of commercial mortgages that are securitized into public investment instruments. From a total market capitalization of only $5.9 billion in 1990, CMBS had grown into a $213.7 billion market as of mid-2001, representing almost 15% of the real estate debt universe. More important, with annual domestic issuance now exceeding $70 billion, as seen in Figure 18, CMBS represent over one third of all new institutional real estate loans.

Investment in CMBS offers portfolio managers and lenders an alternative source of fixed income — one that complements bond holdings. CMBS provide a spectrum of risk and return investment alternatives, healthy spreads to Treasuries, and returns somewhat higher than similarly rated corporate bonds. Furthermore, the underlying asset behind CMBS is collateralized debt/mortgages, which also reduces investors risk.

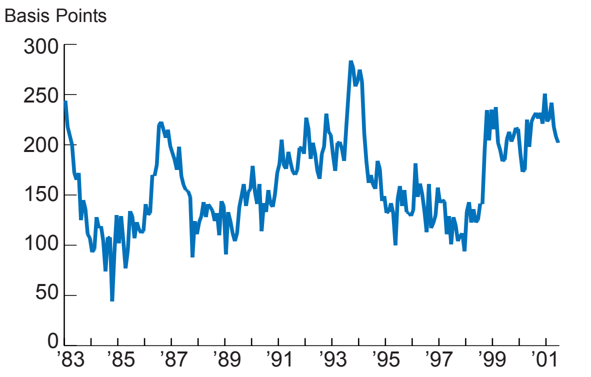
Relative to other asset classes, the CMBS market is still in its infancy — to the point that we cannot even analyze its performance over one complete business cycle. The asset class will mature as increasing amounts of data become available,

FIGURE 18
GROSS ISSUANCE OF DOMESTIC CMBS



Source: Commercial Mortgage Alert

FIGURE 19
PRICING SPREAD
COMMERCIAL MORTGAGE RATE VS. 10-YEAR T-BOND



Sources: John B. Levy & Co., Federal Reserve

removing uncertainty and leading to more predictable cash flows. Collaterally, this will enhance the efficiency and liquidity of the market, resulting in a more stable spread to Treasuries and corporate bonds.

Similar to corporate bonds, CMBS instruments are classified in tranches. CMBS with a rating of BBB or higher are the "investment-grade" classes that carry the highest level of default protection. In the event of loan defaults, investment-grade investors are the last to lose cash flow. However, the lower the risk premium, the lower the rate of return. "High-yield" CMBS carry ratings of BB or lower and, consequently, receive higher premiums than investment-grade CMBS because they assume higher default risk (see Figure 19).

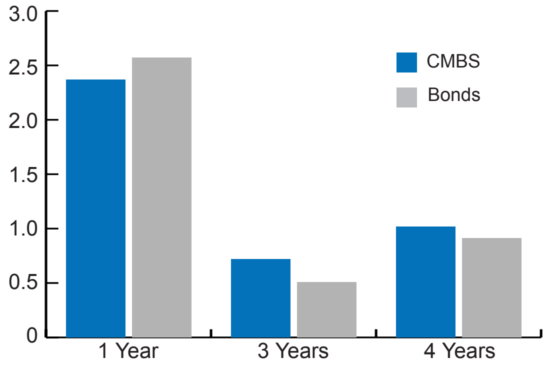
CMBS performance is measured by the Lehman Brothers CMBS Index. Because CMBS are debt investments, capital gains are generally small and are largely affected by swings in interest rates.

Because CMBS is relatively new, we do not have much historical data to analyze. But what we do have is suggestive.

FIGURE 20

SHARPE RATIO - CMBS

periods ending 3Q'01



Sources: John B. Levy & Co., Federal Reserve

Since 1997, CMBS returns have outperformed both Treasuries and corporate bonds. The average annual return for investment-grade CMBS was 7.1%, while the Lehman Government/Credit Bond index exhibited a 6.2% return. Volatility was almost identical for both asset classes (4.1% and 4.2%), resulting in a higher Sharpe Ratio (risk-adjusted return) of 1.04 for CMBS investments, compared with 0.8 for bonds for the four-year period (see Figure 20).

THE ROLE OF REAL ESTATE IN PORTFOLIO DIVERSIFICATION

Relative to other asset classes, real estate offers strong income returns and moderate capital appreciation at low risk levels. Examination of return correlations among asset classes reveals that real estate operates quite independently of the performance of other investments. Thus, real estate can serve as a powerful diversification and risk reduction tool to enhance a portfolio's risk-adjusted return.

Independence of real estate returns is evident in the correlation coefficients matrix in Figure 12. A high correlation indicates that the return of one asset is closely related to the return of another, separate asset. Private real estate equity exhibits an extremely low correlation with both stocks and bonds. The correlation coefficient of private equity real estate and the broader equity market is -0.08, while the coefficient of real estate and bonds is 0.01. Essentially, there is almost no correlation or parallel between the return performance of non-real estate investments and private equity real estate.

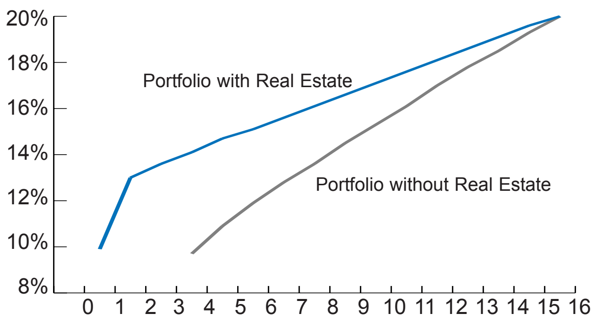
From the standpoint of a portfolio manager seeking to enhance risk-adjusted returns, this is extremely attractive. Investing in assets that do not exhibit the same pattern of performance effectively reduces risk. The non-correlation of real estate to these other investment vehicles is inherent in the nature of real estate. Private equity real estate is an illiquid physical asset with a generally medium-term lease profile. Therefore, the returns are very stable. On the other hand, equities and fixed-income investments are financial instruments that can be traded in public markets and are, therefore, inherently more volatile.

Private equity real estate can also be an effective tool in achieving an efficient frontier at a higher level of risk-adjusted return. Using an optimizer, as Figure 21 illustrates, a portfolio with no allocation to real estate over the last five years has a lower efficient frontier than a portfolio that includes real estate. Because real estate offers solid returns at significantly reduced levels of risk, the differential between the two frontiers is greatest in the preference range for risk-averse investment.

Public equity, or REIT, returns also exhibit very low correlations to stocks and bonds. The correlation coefficient of REIT returns to the broader equity market is 0.35, higher than that of private real estate but still relatively low. In the post-1993 or modern REIT era, this correlation coefficient is even lower (0.20). Compared with different classes of equities in the modern REIT period, REITs have even lower correlations (NASDAQ: 0.06, international stocks: 0.13). Because of their high dividend yields, REITs also exhibit very low volatility relative to the movement of the broader equity market. REITs have the second lowest Beta of all industry groups, relative to the stock market.

In simpler terms, for every percentage point movement in the S&P, an investor can expect a 1.43% movement in semiconductor equity investments. Conversely, an investor would expect

FIGURE 21
EFFICIENT INVESTMENT FRONTIERS



Sources: Wilshire Associates, Standard & Poors, NCREIF, Lehman Bros., Federal Reserve, Rosen Consulting Group only a 0.35% movement in REIT values. This is attractive to investors seeking to diversify a public quadrant equity allocation mix, especially after a period in which the stock market was hammered while REIT returns soared.

On real estate's debt side, historical data reveal strong correlations with the bond market — for both private mortgages (0.86) and publicly traded CMBS (0.94). Mortgage and CMBS returns have patterned the bond market because both public and private commercial real estate loans have all the risk premiums of bonds built into their pricing, with the exception of real estate-specific premiums. Nonetheless, real estate debt investments provide an effective tool for diversifying fixed-income allocations because the underlying asset and source of income are different from other bond instruments.

A Portfolio With and Without Real Estate

The benefits of real estate diversification in a mixed-asset portfolio can be illustrated by comparing two sample portfolios. Both portfolios represent the actual performance for the five-year period ending in the fourth quarter of 2000. The portfolio with a 20% position in real estate exhibits slightly higher returns and reduced volatility (see Figure 21).

In terms of risk-adjusted returns, the portfolio without real estate has a Sharpe ratio of 1.28, while the portfolio with real estate has a lower Sharpe ratio of 1.10. Over time, the portfolio with real estate has a greater probability of achieving its target returns with lower volatility from year to year.

CONCLUSION: REAL ESTATE IN A SLOWING ECONOMIC ENVIRONMENT

Recession and Real Estate

Real estate, as we have seen, is a stable asset class with very low correlations to other types of investments and is therefore a useful tool in diversifying away risk. In an environment of plummeting stock values and declining interest rates, real estate is particularly attractive, because it is a steady, income-generating asset class with significantly lower volatility than many other investments.

Real estate is not immune to the negative impacts of an economic slowdown, but its inherent characteristics can help to provide a durable income stream during a period of low economic growth. Real estate returns are supported by lease contracts that continue to generate a steady source of income from tenants during downturns. These leases generally have a duration of 3 to 10 years (except for apartments). In a slow economy, companies look to cut expenses in numerous different ways (layoffs, lower operating expenses, subleasing excess space, etc.) before attempting to terminate existing office or retail leases.

In-place commercial leases generally carry multitenant institutional properties through a downturn, with the major threat to income coming from releasing risk. Apartments, although they generally have one year leases, are the most stable property type because, in any economic climate, people continue to pay rent on their residences.

All asset classes are affected by economic downturns. However, compared with equity and fixed-income investments, the history of real estate as an asset class illustrates that it very rarely has years in which the overall yielding negative. The most thorough study of the subject shows that there have only been three years in which real estate has posted negative annual returns since 1934. In percentage terms, real estate returns were negative only 4.5% of the time. During the same period, stocks and bonds exhibited negative annual returns 17 and 16 times, respectively — approximately 25% of the time. With this very small probability that annual returns will be negative, real estate is appealing to risk-averse investors.

Inflation and Real Estate

Inflation is of less concern now than at any point in the past 25 years. Proactive management by the Federal Reserve Board has put a tight lid on domestic inflationary pressures. Internationally, inflationary pressures have subsided in most industrialized nations, reducing external economic threats. However, too much liquidity, an overheated recovery, or some other currently unrecognized factor could restore inflationary fears despite the Federal Reserve's recent success in this area.

Should inflation return, we would expect real estate to perform well as a hedge against rising prices. During the last period of unusually high inflation (1978-1981), real estate returns consistently exceeded inflation. One of the main reasons for this is that real estate is a physical asset that does not change much over time, whereas monetary instruments lose value as inflation rises.

On a microeconomic level, most contemporary office and retail leases contain periodic rental rate adjustments for inflation (in sharp contrast to those signed in the early 1990s). Apartment leases, with annual renewals, also have upward price elasticity. These factors help to ensure cash flow durability from individual properties of all types. Finally, many property owners structure their lease portfolios so that contracts expire on a rolling basis, thus improving their ability of achieving market rents over time. These strategies, which are common throughout the industry, ensure that rent increases will show up periodically in a building's cash flow, while cushioning the investment from the negative effects of any drop in market rent.

Conclusion

The case for real estate can be made from several perspectives.

- **First and foremost, real estate provides — in each of the investment quadrants — competitive nominal returns and superior risk-adjusted returns.**
- **It also works well as a tool to diversify mixed-asset portfolios, especially those with low to medium risk targets.**
- **It provides significant protection against inflation in most cases, and its lease structure provides for relatively stable cash flow yields.**
- **As real estate's total return relies very heavily on these cash flows, its volatility is relatively low.**
- **And, as the industry has matured, it has opened up investment opportunities that are relatively liquid and increasingly transparent.**

For all of these reasons, real estate merits the portfolio manager's attention.