Why Real Estate?

And how? where? and when?

Susan Hudson-Wilson, Jacques N. Gordon, Frank J. Fabozzi, Mark J.P. Anson, and S. Michael Giliberto

Susan Hudson-Wilson is founder and CEO of Property & Portfolio Research, Inc., in Boston.
susan@ppr.info

Jacques N. Gordon is the global strategist for LaSalle Investment Management in Chicago.
jacques.gordon@lasalle.com

Frank J. Fabozzi is Frederick Frank adjunct professor of finance at the School of Management at Yale University and a consultant based in New Hope, PA.
fabozzi321@aol.com

Mark J.P. Anson is chief investment officer at CalPERS in Sacramento, CA.
mark@calpers.ca.gov

S. Michael Giliberto is a managing director at J.P.Morgan Asset Management in New York City.
michael.giliberto@jpmorgan.com

Halfway into the first decade of the new millennium, real estate has been a strong performer. In fact, the 20-year track record of this asset class shows that real estate has earned its way into a diversified portfolio of stocks, bonds, and private equity.

As a result, asset allocators have added real estate to the policy portfolios of more pension funds in the past five years, and funds with a real estate allocation have generally increased their real estate exposure. Other investors without any fixed real estate allocation have added real estate products to their alternative investment choices. Real estate is also beginning to turn up as a separate choice in some defined-contribution plans.[1]

Given all this, it makes sense to bring practical insights about real estate to those responsible for managing and guiding institutional portfolios. This *Journal* published its first issue devoted entirely to real estate in 2003. In the lead article in that issue, three of us addressed the question, "Why Real Estate?" (see Hudson-Wilson, Fabozzi, and Gordon [2003]). Other articles in that issue discuss a wide range of issues including asset pricing, real estate volatility, leverage, real estate securities, and securitized real estate debt.

In 2005, we revisit the question with the latest data and with new insights gained from a growing body of quantitative real estate research. And with the fast-moving developments in the world of institutional real estate investing, it makes sense to extend the discussion further. As prices rise and yields fall in mature markets all around

the world, real estate investors now face many of the same challenges faced by other asset classes. Finding reasonable risk-return combinations in real estate has led investment managers, pension funds, endowments, and foundations into new territory.

In this special issue of *The Journal of Portfolio Management*, we have assembled a strong collection of articles that address new topics in light of these challenges. This time around, we also address institutional investors already beyond the "why." They are now asking how, where, and when. As any good scholar of an asset class, we shift our role at the end to the role of a student in order to learn from what other authors have to contribute.

WHY REAL ESTATE? REVISITED

Hudson-Wilson, Fabozzi, and Gordon [2003] present the case for the inclusion of real estate in a well-managed institutional investment portfolio. The primary considerations are:

1. To reduce the overall risk of the portfolio by combining asset classes that respond differently to expected and unexpected events.
2. To achieve an absolute return competitive with other asset classes.
3. To hedge against unexpected inflation.
4. To constitute a part of a portfolio that is a reasonable reflection of the overall investment universe (an indexed, or market-neutral portfolio).
5. To deliver strong cash flows to the portfolio.

Each rationale should be reexamined periodically, using the broadest definition of real estate: the combined public, private, debt, and equity performance index. The definition of real estate for institutional investors has expanded to cover four financial structures:

1. Private commercial real estate equity, held as individual assets or in commingled vehicles.
2. Private commercial real estate debt, held as either directly issued whole loans or commercial mortgages held in funds or commingled vehicles.
3. Public real estate equity structured as real estate investment trusts (REITs) or real estate operating companies (REOCs).
4. Public commercial real estate debt structured as commercial mortgage-backed securities (CMBS).

EXHIBIT 1
Size and Share of Real Estate Quadrants (investment-grade, $billions) as of 2004 Q4

	Public	Private
Debt	$548 (17%)	$1,581 (50%)
Equity	$282 (9%)	$763 (24%)

Sources: "Roulac Capital Flows Database," published in Investment Property; Federal Reserve, NAREIT, and Property & Portfolio Research, Inc.

These four structures constitute the quadrants of the modern real estate investment class. Exhibit 1 shows the approximate investment-grade value and percentage shares of each quadrant as of the fourth quarter of 2004 in the United States.

As the real estate investor is often explicitly or implicitly invested in all four quadrants and can gain access to real estate behaviors through each one, it makes sense to adjust one's thinking on the role of real estate to account for every quadrant. In the past, we have assessed the role of real estate only on the basis of the private equity quadrant. This approach, however, ignores the reality of the investment structures available in the market and the forces that influence these different vehicles.

A holistic approach views the performance of real estate across all the quadrants, as most institutional investors now hold real estate in at least two and more typically three or all four quadrants.

CAP-WEIGHTED REAL ESTATE INDEX

To measure the behavior of the true real estate market, we create a time series of capitalization-weighted performance measures for each quadrant and then combine them to form a capitalization-weighted index of the real estate investment universe.

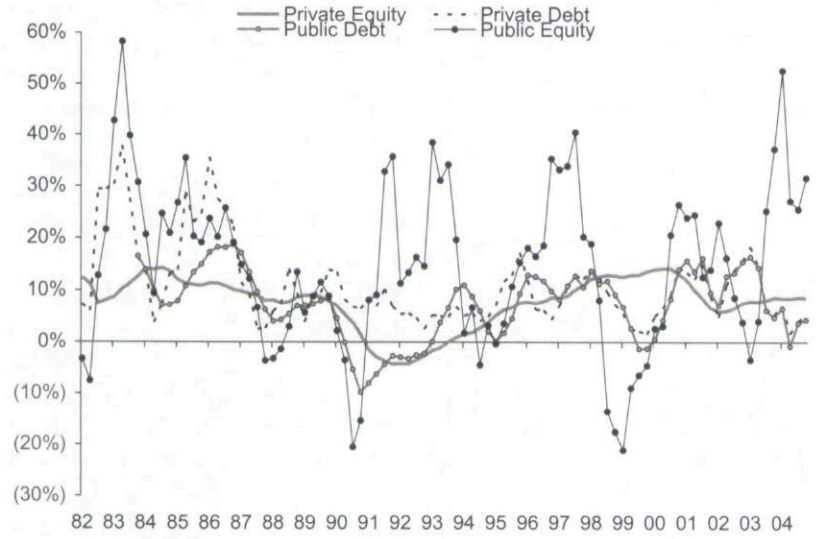
Quadrant Returns

As in Hudson-Wilson, Fabozzi, and Gordon [2003], returns for each quadrant are derived, as much as possible, from publicly available data. Where public data are inadequate, we model the returns.

The quarterly returns for each quadrant are presented in Exhibit 2 as rolling one-year returns.

EXHIBIT 2

Returns for Components of PPR Real Estate Index—1982-2004Q4



Quadrant Weights

The quadrant returns described in Exhibit 2 can be combined into a total real estate investment return index weighted in accordance with the capitalized values of each quadrant through time. The overall weights of the quadrants are shown in Exhibit 3. Underlying data include 1) NCREIF Property Index; 2) NAREIT Equity REIT Index; 3) Lehman Brothers CMBS Index and Property & Portfolio Research CMBS data; and 4) Giliberto-Levy Commercial Mortgage Performance Index.

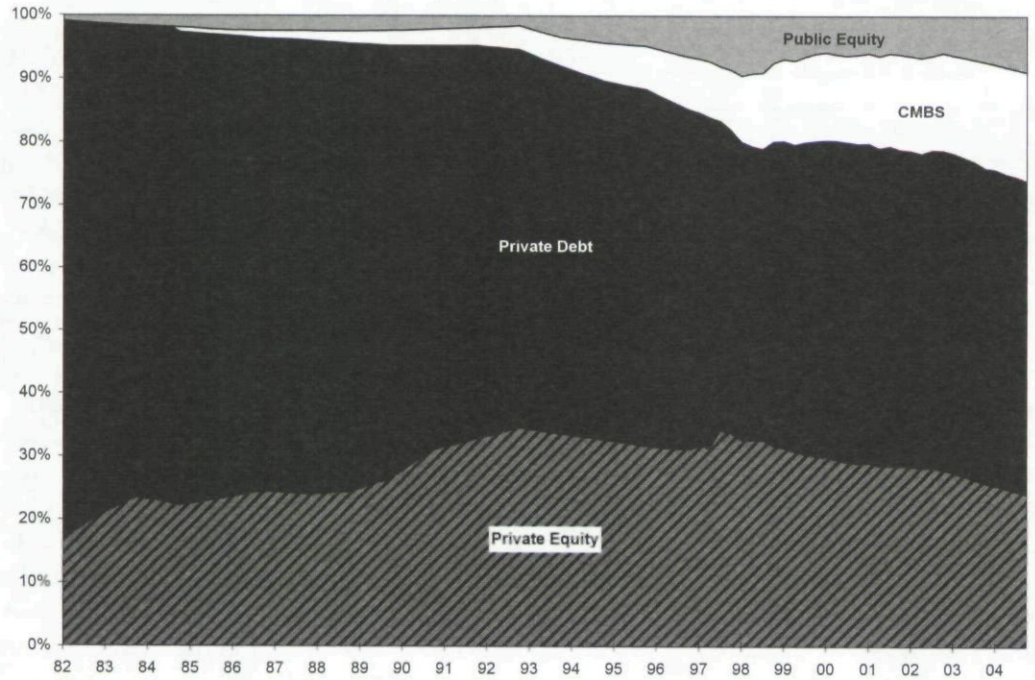
Private debt made up the vast majority of investable real estate in the early 1980s, representing 82% of the institutional investor market in 1982. The weight for private debt as of the end of 2004 fell to 50%, much closer to the 24% weight for private equity as of the end of 2004. As of year-end 2004, CMBS accounted for 17% of the index, while public equity encompassed 9%.

The real estate universe return series is shown in Exhibit 4. The average return over the 21-year period through 2004 is 10.29%, with a standard deviation of 6.59%.[2]

It is interesting to note that the overall real estate universe index never experienced negative returns—even though individual quadrants did—even in the depth of the

EXHIBIT 3

Real Estate Quadrant Weights—1982-2004Q4



Current Quadrant Weights (04Q4)	
Private Equity	24%
Private Debt	50%
CMBS	17%
Public Equity	9%

EXHIBIT 4

PPR Real Estate Index Total Return—1982-2004Q4

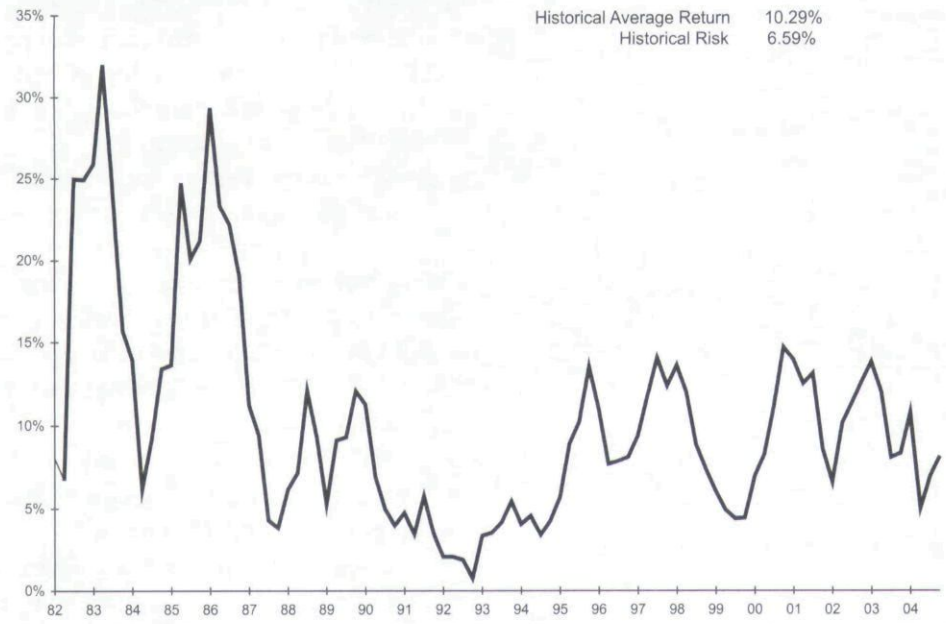


EXHIBIT 5

Real Estate Return and Risk Parameters for Optimization—1987–2004Q4

	Return	Risk	PPR Real Estate Index	Bonds	Stocks	Cash
			Correlations			
PPR REI	7.9%	3.6%	1.000			
Bonds	8.0%	5.1%	0.375	1.000		
Stocks	13.1%	17.5%	-0.050	-0.015	1.000	
Cash	4.8%	2.0%	0.053	0.196	0.206	1.000

real estate depression. Mortgage returns held up during the early part of the crash in the 1980s, and REITs had started to recover by the time mortgages lost momentum. More recently, when private equity suffered, REITs remained strong. Thus, there are highly useful risk-reducing relationships across the real estate quadrants.

The average return for the index is also considerably higher than the National Council of Real Estate Investment Fiduciaries (NCREIF) private equity-only index average of 8.32% over the same period. Risk is higher than NCREIF's 5.48%, as should be expected, given the higher-risk quadrants included along with private equity in the PPR Real Estate Index. When the very high-return/high-volatility early years of the mortgage index are dropped, and the index statistics are calculated starting in 1987, the index falls to a 7.89% average return with a very low 3.61% risk.

We use the 1987–2004 period for the rest of the analysis, because we believe that the volatility of those very early years does not represent typical behavior.

REAL ESTATE AS A PORTFOLIO DIVERSIFIER AND RISK-REDUCER

Using the full-quadrant real estate index (PPR REI), we can calculate the optimal allocation for real estate in a mixed asset class portfolio of stocks, bonds, and cash. The overall bond market is measured by the Lehman Corporate/Government bond index; the stock market is measured by the S&P 500; and cash is measured by the Treasury bill rate.

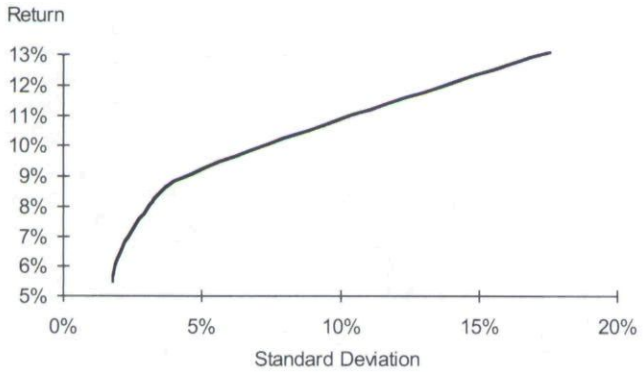
The parameters for the optimization (using quarterly returns from 1987 through year-end 2004) are shown in Exhibit 5.

As before, the correlations between real estate and stocks, real estate and bonds, and real estate and cash suggest that real estate can play a significant role in a mixed-asset portfolio. These assets trace out the efficient frontier shown in Exhibit 6. Real estate's role extends from the lowest-risk end of the efficient frontier to just past the midpoint of the mixed-asset frontier. This makes sense, as real estate is both a low-risk asset itself and an excellent risk-reducer in a stock and bond portfolio.

This evidence suggests that real estate is eminently suitable for investors interested in capital preservation who need to earn a useful rate of return. (Strict capital preservationists would be 100% allocated to inflation-indexed bonds and would earn very little return.)

At one point along the lower half of the frontier, the model calls for an allocation of 67% to real estate. Of course, an asset allocator would typically constrain these results in a real-life situation to avoid overweighting any

EXHIBIT 6
Multiasset Class Efficient Frontier—1987–2004Q4



Source: Property & Portfolio Research, Inc.

EXHIBIT 7
Example Allocations—1987–2004Q4

Return	Risk	Real Estate	Bonds	Stocks	Cash
7%	2.3%	46%	13%	4%	37%
8%	3.0%	61%	20%	8%	12%
9%	4.6%	53%	24%	22%	0%
10%	7.4%	34%	25%	41%	0%
11%	10.4%	15%	26%	59%	0%
12%	13.6%	0%	23%	77%	0%

single asset class. This weight drops to zero as one moves up the frontier.

Exhibit 7 shows optimal asset allocations for return objectives of 7% through 12%.

REAL ESTATE AS AN ABSOLUTE RETURN-ENHANCER

The second possible reason to include real estate in an investment portfolio is to bring high absolute or risk-adjusted returns to the portfolio. Exhibit 8 shows that, on average, real estate did not outperform stocks and bonds in absolute terms over the past 23 years. Assessed in terms of total return per unit of risk, real estate outperforms both stocks and bonds (*see Exhibit 9*). Real estate also outperforms both stocks and bonds on a risk-adjusted basis when we apply the more commonly used standard Sharpe ratio and assume a risk-free rate of 5.4% (the cash return for the period).

Hence, consistent with the findings of Hudson-Wilson, Fabozzi, and Gordon [2003], although there is justification for including real estate in a portfolio from the perspective of risk-adjusted returns, it is not immediately justifiable to include real estate for the sole reason of bringing high *absolute* returns to the portfolio.

REAL ESTATE AS AN INFLATION HEDGE

Conventional wisdom has held that real estate performs as an inflation hedge. This means that if inflation is greater than expected, real estate returns will compensate for the surprise, and will help offset the negative response of the other assets in the portfolio. As new risks of inflation begin to surface, this rationale is important if it is accurate.

Real estate returns have a complicated relationship with inflation. Inflation elicits different responses in the different property types through divergent impacts on the income and value components of return, and through variation in the effects of past and most recent inflation. The return-modeling process can generate a clear view of the relationship among all these components.

Here, we first look at the response of private equity to inflation. Current office net operating income (NOI) reflects the inflation experience of one year to (even) ten years ago, while apartment NOI reflects more recent inflation. The impact of past inflation, appropriately lagged, is positive for all four major property types.

In the office, warehouse, and apartment markets, current inflation causes NOI to fall as the increase in current rents associated with recent leases does not fully offset the increase in expenses, which impacts the entire asset. In the retail sector, however, current inflation increases NOI, as the impact on rents and percentage rents (which apply to all or much of the square footage in the building) more than offsets the impact on the few expenses that are not passed through. Retail then has two characteristics that render it a very capable transmitter of inflation to asset performance: percentage rents and generous pass-throughs of expenses.

Inflation impacts the capital value return in two ways. First, it impacts current NOI, as described above, which feeds through to value via the capitalization rate. This influence is especially strong for retail assets. Second, inflation affects the cap rate directly by influencing NOI growth expectations and thus investors' demand for real estate investments (cap rates go down as the risk premium shrinks, when real estate is viewed as an inflation hedge). The direct capital value impact of inflation is significantly

EXHIBIT 8
Total Return by Year—1982–2004Q4

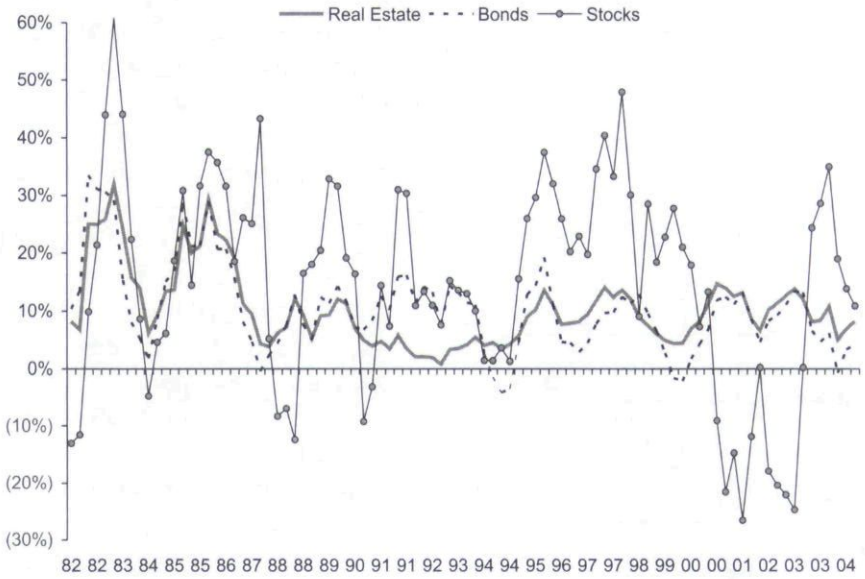


EXHIBIT 9
Returns and Risk-Adjusted Returns for Major Asset Classes—1987–2004Q4

	Return	Risk	Return Per Unit of Risk	Sharpe Ratio
PPR REI	7.89%	3.6%	2.18	0.86
Bonds	8.04%	5.1%	1.58	0.64
Stocks	13.10%	17.5%	0.75	0.47

Source: Property & Portfolio Research, Inc.

positive for apartment and office properties, but not significantly different from zero for warehouse properties.

Thus, the empirical assessment shows that private equity real estate is a very useful partial inflation hedge. That said, it is also clear that the degree of inflation-hedging capacity is not uniform across property types. Nor is this true of the debt quadrants.

As is the case with most debt, real estate debt is not a good inflation hedge because unexpected inflation and concomitant increases in nominal interest rates negatively impact the value of outstanding fixed-income securities (mortgages and CMBS). Publicly traded forms of equity real estate will capture some of the benefits of the inflation hedge but are less successful transmitters of this value than private equity because of links to the stock market, which is generally damaged by inflation.

There is now evidence that REIT returns have become less closely correlated with stock market returns recently, which could lead to better inflation-hedging capability in the future (see Adrangi and Chatrath [2004]). Still, if inflation hedging is a key reason that an investor chooses an allocation to real estate, that investor must tilt the portfolio toward private equity.

REAL ESTATE AS A REFLECTION OF THE INVESTMENT UNIVERSE

Real estate belongs in a balanced investment portfolio because real estate is an important part of the investment universe. Any portfolio that does not include real estate is based on a bet that real estate will perform less well than is implied by the market-driven relative prices. Indeed, any allocation to real estate that does not reflect real estate's overall share in the investment universe implies a different bet from that of an indexed portfolio, so such an off-market bet needs to be well justified.

A market cap-weighted and quarterly rebalanced portfolio of the major asset classes would have yielded an average annual return of 10.2% with a risk of 7.6% over 1987–2004. Pension fund portfolio allocation to real estate is now approximately 4.3% (3.6% in equity real estate, 0.7% in mortgages), according to the 2004 *Pensions & Investments* survey (which includes many plans with no explicit real estate allocation). A portfolio with an allocation of 4.3% of the total throughout the historical period rather than the market allocation raises the port-

EXHIBIT 10

Income Return Summary—Real Estate (1987–2004Q4)

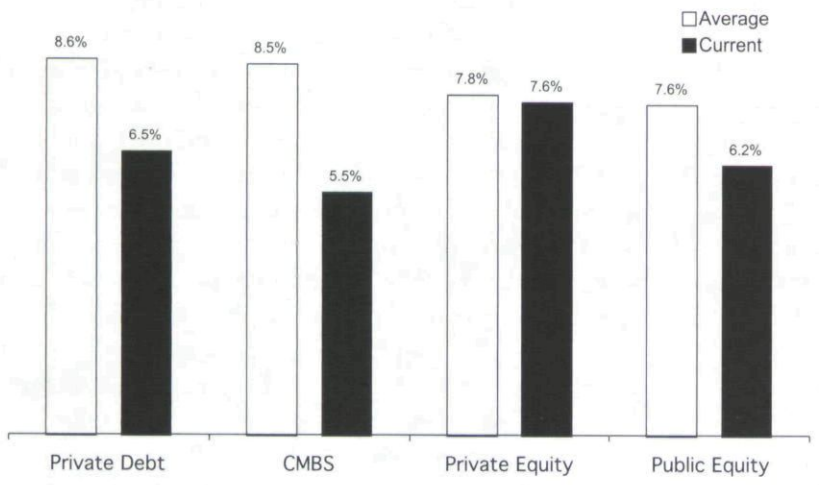
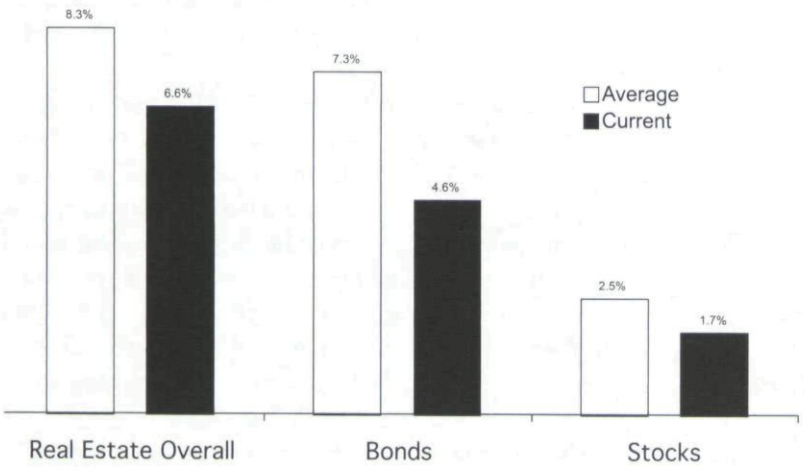


EXHIBIT 11

Income Return Summary—Asset Classes (1987–2004Q4)



folio average return by only 6 basis points (to a 10.3% return), but also raises portfolio risk enough to cause the return per unit of risk to fall by 3 basis points.

STRONG CASH FLOWS

Exhibits 10 and 11 present the relative income returns on real estate as we define them, compared with those of bonds and stocks. Real estate is a head-and-shoulders superior producer of steady income for investors. If an investor needs to rely on earning a higher proportion of its total portfolio return from realized income versus unrealized capital appreciation, real estate is a winner. In fact, all forms of real estate investment are better providers of cash returns than stocks and bonds.

While regular distributions of cash are important to some investors, they are less important to others. An investor with a total return orientation (and whose liabilities are far off in the future) may be less attracted to this particular feature of real estate. But when income is valued as a way to meet current liabilities, real estate becomes a very attractive addition to a portfolio.

UPDATED ANALYSIS

When we revisit the analysis, the empirical rationales for including real estate in an investment portfolio hold up, and indeed are strengthened. Real estate continues to be a risk-reducer in a low- to moderate-risk portfolio and has less of a role in a very highly risk-tolerant portfolio. Real estate is still not reliable as a producer of the highest absolute returns; stock equities are better suited for that task. We have reconfirmed that private equity real estate is an effective partial hedge against inflation, although different property types deliver different degrees of inflation hedging.

The growing investable universe of real estate makes the decision to leave real estate out of a portfolio altogether in 2005 a quite drastic choice that requires a rationale in and of itself. Real estate maintains its ability to generate better cash yields than both stocks and bonds, even though yields have now fallen farther below long-term averages as real estate asset prices have risen.

BEYOND WHY—PORTFOLIO ALLOCATION, DIVERSIFICATION, AND TIMING

Once a pension plan or an endowment has decided to set aside a portion of its portfolio for real estate, a number of questions arise. How much should be allocated to real estate? Why do private real estate and listed real estate behave differently? What constitutes a well-diversified portfolio? Four articles in this issue address these questions using recent data.

Craft [2005] points out that allocations to real estate

may be justifiably lower than what a traditional mean-variance approach focusing only on the asset side would suggest. The low correlation between real estate and pension plan liabilities means that high allocations to real estate of 20% or more (generated by a mean-variance approach) would make the pension plan's funding ratio more volatile. A lower allocation helps the overall portfolio, without adding volatility to the fund's surplus or deficit.

Fisher and Goetzmann [2005] bring new insights to the diversification question, using a simulation approach based on actual internal rates of return earned by a large sample of bought and sold properties in the NCREIF index. Their research points to the ways that time-weighted returns can be somewhat misleading as an indication of the IRR experienced by actual portfolios of private real estate. Actual IRRs can be several percentage points lower than time-weighted returns because of the back-end timing of cash flows.

Fisher and Goetzmann demonstrate that portfolios with as few as 10 properties stand a reasonable chance of earning the mean return, but the standard deviation is still high enough that a negative return cannot be ruled out. At the 95% confidence interval, earning a negative return becomes very unlikely when portfolios include 30 or more properties. These results are very sensitive to timing, suggesting that pension plans without a pressing need for liquidity should be able to earn an excess return in real estate by buying when valuations are attractive and selling when they are less so.

Chen, Ho, Lu, and Wu [2005] extend the research by reexamining the diversification benefits of adding REITs to a stock and bond portfolio. By beginning their analysis in 1986 rather than in 1972, they refute the finding of Georgiev, Gupta, and Kunkel [2003] and find that REITs play an important diversifying role in stock and bond portfolios.

Marcato and Key [2005] use private real estate data for the United Kingdom to show that momentum strategies significantly outperform index returns, while contrarian strategies perform poorly. This suggests that timing strategies are asymmetrical, and may work better on the upside than the downside.

Excess Liquidity and Pricing

One of the most pressing issues facing real estate today is excess liquidity. In our first real estate volume, Corcoran and Iwai [2003] and Sivitanides, Torto, and Wheaton [2003] addressed this problem, then persistent in the face of lackluster fundamentals. Since then, liquidity as measured by capital flow to real estate and transaction volume has grown significantly. Fundamentals in the United States have also improved significantly.

Several authors now take a new look at how the asset pricing markets operate when interest rates and inflation remain low and so many new investors are crowding into real estate. Conner and Liang [2005] point out that these capital market forces dominate the return performance of unlisted real estate (more so than changes in income) over the life history of the NCREIF Property Index. Jacob and Manzi [2005] note that strong capital flows also affect the terms on which debt capital is made available to borrowers. Lending terms have changed over the last ten years, as rating agencies have become more comfortable with less restrictive subordination structures and higher loan-to-value ratios.

One conclusion to draw from several of these articles is that in an asset class with high levels of debt financing and private (unlisted) capital sources, investment flows affect the very nature of how the market operates. In other words, asset pricing, yields, and spreads are not the only mechanisms that adjust when capital flows rise and fall.

In the direct markets for real estate, high levels of investor interest have also changed the way the market operates. On the equity side, transaction speed has shortened; representations and warrantees from sellers are now more limited, and buyers must be prepared to lose a deal to the next-highest bidder rather than ask for a price concession to address physical or economic issues discovered during due diligence. A property's flaws must be already factored into a bid price if a bidder expects its offer to be successful.

On the mortgage side, lending criteria as well as tighter spreads have all become more favorable to borrowers, in parallel with many of the features of the securitized debt market described by Jacob and Manzi [2005].

Strategies for Beating Core Returns

Real estate is certainly not the only asset class coping with record fund flows. Do the clearing mechanisms in listed markets, though, change so much when investor interest changes? Several of our articles address new strategies taken by real estate investors. When core assets in mature domestic markets like the United States, the United Kingdom, Australia, and Western Europe are fully valued, investors turn to new approaches.

Some of these strategies are effectively an expansion

of what constitutes a core holding. They might include:

- Taking on a new property type like hotels (see Corgel [2005]).
- Seeking higher yields in weaker locations (see Wheaton and Nechayev [2005]).
- Seeking better pricing in international markets (see Anson, Hudson-Wilson, and Fabozzi [2005]).
- Understanding where technical features of real estate risk may be mispriced (see both Eppli and Tu [2005] and Shilling, Simmons-Mosley, and Thode [2005]).

The demand for investment real estate is growing, while the domestic supply is ostensibly fixed. In 2005, the pressing questions that face investors are how and when to put money to work in real estate. Many investment managers tout their ability to manufacture core assets rather than buy them. Kaiser [2005] observes that these value-added strategies are so important in the world of real estate investment management that the industry needs a new measure he terms *gamma* to distinguish these activities from alpha and beta in a traditional attribution analysis. These gamma strategies, Kaiser believes, can and should be measured apart from the pricing, market selection, and stock selection skills of a real estate investment manager. By controlling the asset and its operations, a real estate investment manager can add or subtract value in ways that are rarely open to stock and bond portfolio managers.

Hahn, Geltner, and Lietz [2005] look at the results of over 100 commingled funds that use opportunistic investing strategies. They find evidence that a group of persistent outperformers are able to beat their vintage year peer group repeatedly. They also find a large group of fund sponsors that significantly underperform their targets.

This result appears to support Kaiser's view that more focus on understanding the skills and capabilities needed to undertake successful value-added strategies would be warranted. It also means that once alpha (or gamma?) managers distinguish themselves, the chances are high that they will be able to do so again.

This suggests that a nascent market for investment funds is likely to evolve, with demand rationed by fees, by relationships, or by other mechanisms that have not yet been devised.

Derivatives

The next stage in the evolution of the real estate investment management business is likely to be the addition of more technical hedging and index strategies based on derivatives. Just as other asset classes have developed products to allow investors better access to beta performance, private real estate is only now beginning to give investors this opportunity. The United Kingdom was the first country to develop swaps based on the Investment Property Databank (IPD) index. The United States has recently launched a similar swap facility based on the NPI.

Fisher [2005] describes how the swap works. He also discusses the challenges inherent in making a market in the NPI, which as an appraisal-based index is subject to high levels of serial autocorrelation, and insider knowledge and sample selection bias. Goodman and Fabozzi [2005] discuss the different types of CMBS total return swaps and the reason they offer an attractive financing opportunity for those who want exposure to this sector of the fixed-income market.

QUO VADIS?

Real estate has gained acceptance among more institutional investors as a mainstream asset class—but with this acceptance come new challenges: high capital flows, high prices, lower yields, and expansion of the real estate universe into relatively untested property types or foreign markets. Public real estate—REITs or CMBS—continues to evolve and mature as a mainstream securitized market.

Many investors will be content to stick to these markets due to their high levels of transparency, liquidity, and diversification. Other investors will focus on private real estate in order to seek higher returns, or to obtain financial performance that is not readily available in the listed markets.

As real estate markets continue to evolve and grow, we would expect to see more investment products brought to market. The launch of private real estate derivatives in the United States is but one example. Long-short strategies in REIT and REOC portfolios are another example. The CMBS markets in the United States have grown increasingly sophisticated, and risk management tools are now available to portfolio managers and to rating agencies that were unheard of ten years ago.

None of these new tools or products mean that the risks of investing in real estate have been eliminated, or even diminished to any significant degree. The strong track

record of the U.S. real estate market in the latter half of the 1990s and the first half of this decade was born out of very poor performance in the late 1980s and early 1990s.

In the 1980s, we saw excess liquidity and highly speculative and inexperienced investors enter the market. Are circumstances really so different today? We note one difference in the greater levels of transparency, data, and research available to an investor in real estate in 2005 than in 1985. Yet, as other asset markets show, even with all this information, risk (which we can quantify) and uncertainty (which we cannot) are never eliminated entirely.

ENDNOTES

[1]A January 2005 survey by Institutional Real Estate, Inc., shows that for pension funds, endowments, and foundations that have a real estate allocation the average allocation is 8.7%, up from 6% in 2002. According to surveys conducted by the Profit Sharing (401K) Council of America, approximately 12% of all tax-deferred defined-contribution plans included a real estate option in 2004.

[2]Rolling one-year returns are used in all measures in this article.

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