Executive summary. The U.S. commercial real estate market has been estimated to be as large as $4.6 trillion.¹ Historically, commercial real estate has provided competitive real returns and diversification opportunities for traditional portfolios. Yet an important question remains: Can an investment in commercial real estate actually deliver the characteristics and benefits of the broad real estate market? Indeed, investment vehicles such as real estate investment trusts or even limited partnerships or private investment pools can look quite different than the broad real estate market. The complexity of this question is a possible reason why institutional investors on average allocate only 4% of their portfolios to commercial equity real estate (Greenwich Associates, 2008). In fact, in contrast to the $4.6 trillion total market, as of December 2008 private real estate holdings were estimated at $305 billion, according to the National Council of Real Estate Investment Fiduciaries (NCREIF), and public REITs at $153 billion. This analysis evaluates the commercial real estate market and offers perspective regarding the various investment options. We contend that:

- Commercial real estate represents a unique and significant asset class.
- A real estate investment trust index serves as a long-term proxy for the commercial real estate market.
- Since REITs represent exposure to the commercial real estate asset class, a specific allocation to REITs may be based on a portfolio’s mandated objective; expected returns, risks, and covariance to the portfolio; or a unique circumstance.
- Because REITs are part of a broad-based U.S. equity portfolio, when determining an appropriate allocation to REITs, investors must factor in the exposure already contained within the active and indexed portions of the portfolio.

¹ Bureau of Economic Analysis: Current cost net stock of private structures.
Commercial equity real estate basics

Commercial equity real estate represents a unique and significant asset class. It provides investors with the opportunity to own property, with the primary objective of leasing a structure to various tenants in return for income and the potential for capital gain upon the sale of the property.

Commercial real estate may be segmented by property type, geographic location, and development stage. Core property types commonly include multi-family residential (apartment buildings), retail, office, and industrial. Other less common property types include health care facilities, public storage buildings, golf courses, or hotels. Geographic categories commonly include the Northeast, Southeast, Midwest, Northwest, and Southwest, as well as metropolitan, suburban, or rural areas. Development stages include core (mature, income-producing properties), value-added (income-producing properties with appreciation potential), and opportunistic or distressed (development properties with a focus on capital appreciation).

Long-term returns for real estate are driven primarily by a property’s net operating income (NOI), and to a lesser extent by property value appreciation. Historically, commercial real estate prices and income (assuming properties are maintained appropriately) have grown on par with to slightly above inflation (Figure 1). Income-oriented properties may increase rents to compensate for inflation’s erosion of value, and thus obtain some hedge against inflation. However, for a property to maintain its inflation-adjusted value, it must be well-located, have rents that can be adjusted periodically, and not be subject to sudden, sharp increases in operating costs. As an extreme example, if an apartment had rent control provisions, the proprietor would not be able to increase rents, and the property would therefore not provide an inflation hedge.

Notes on risk: All investments are subject to risk. Funds that concentrate on a relatively narrow market sector face the risk of higher share-price volatility.

Past performance is not a guarantee of future results. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.
Sustainable NOI is used to calculate the current and future value of a property. Expectations of future NOI (and hence property values) change with economic cycles, the supply and demand of properties and tenants, and the performance of the financial markets (stocks and bonds compete with real estate for investor capital). For example, Figure 2 demonstrates the relationship between economic performance and the supply and demand for commercial real estate—specifically industrial and office properties. During robust economic performance throughout the 1990s, vacancy rates fell while new construction increased. However, when the economy slipped, both trends reversed rather sharply.

Of course, economic drivers tend to be particular to individual property types and regions. This arises because of the substantial differences among the potential tenants for each property type. It can be surmised, for example, that general economic expansion leads to greater demand for commercial real estate properties, and increases in income and appreciation rates, while housing price increases are likely to affect only the market for apartments, and a recession in the Northeast is unlikely to have an impact on properties on the West Coast.
Public and private real estate

A real estate investment trust (REIT) is an operating company that offers equity shares to the public and, as a result, trades on a stock exchange. REITs derive most of their earnings from property income, with a smaller portion derived from property appreciation when an underlying holding is sold. As a consequence of the various tax and income requirements, many REITs choose to invest primarily in mature, income-generating properties. In this report we proxy REIT investments with the National Association of Real Estate Investment Trusts (NAREIT) Index. Because mortgage and hybrid REITs (which are a combination of mortgage and equity REITs) represent a smaller portion of the aggregate REIT marketplace, we use the equity REIT index.

Private real estate investment can take the form of direct investments, open- or closed-ended commingled funds, or private partnerships. In a direct investment, an investor purchases and manages a real estate property directly. Closed-ended commingled funds represent large pools of capital, with the underlying properties managed by a specialist. Open-ended commingled funds provide more freedom to investors to add or withdraw capital—given proper notification and the approval of the manager. By their very nature, private partnerships are highly customizable. Without tax laws to govern their structure, private partnerships can focus on any combination of property types and development stages.

The most popular benchmark to measure private investment holdings is the NCREIF Index. Because of well-documented issues with the appraisal-based valuation methodology, which introduces serial correlation and return (volatility) smoothing, we elected to use a transaction-based index developed by the MIT Center for Real Estate (Fisher, Geltner, and Pollakowski 2006) and endorsed by NCREIF. The transaction-based index corrects for smoothing, leading to standard deviations significantly greater than reported in the standard index.

Investing in commercial real estate

Traditionally, there are three primary means of investing in commercial real estate, as summarized in Figure 3: direct investment and management, participation in a private investment pool, and share purchases of securitized real estate management companies in the form of real estate investment trusts.

Direct investment in real estate involves purchasing a property outright and assuming operating control over rent policy and collection, maintenance, and growth.

While direct ownership allows the investor to collect rents and the proceeds of any property sales without a management fee, it requires expertise in property management, or a willingness to hire a third-party manager. Direct ownership also limits the ability to create a multi-property portfolio because of the size of the required investments. Because of the challenges of direct real estate ownership, few diversified real estate investors choose this option.

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2 Tax laws mandate that a REIT must pay out 90% of its taxable profit in the form of dividends. In addition, a REIT must continually satisfy certain tests with respect to the sources of its income, the nature and diversification of its assets, the amount of its distributions to stockholders, and the ownership of its stock. Among other things, these restrictions may limit the company's ability to acquire certain types of assets, limit its ability to dispose of assets that it has held for less than four years if the disposition would result in gains exceeding specified amounts, limit the ability to engage in hedging transactions, and require the company to make distributions to its stockholders at times that it may deem it more advantageous to use the funds available for distribution for other corporate purposes or at times that the company may not have funds readily available for distribution.

3 For analysis using the NAREIT Index, many choose to focus on the period starting in the early 1990s, because of the significant tax and structural changes following the 1986 Tax Reform Act. The act permitted REITs to operate and manage most types of income-producing commercial properties by providing “customary” services associated with real estate ownership. Between 1986 and 1992, real estate suffered a severe recession, and by 1992 many private real estate companies realized that the most efficient way to access capital was from the public marketplace through REITs (source: www.nareit.com).
Private real estate vehicles provide direct access to commercial real estate properties. However, private real estate can be difficult to include in a diversified portfolio for many investors because of high costs, illiquidity, limited transparency, and large required minimum investments. And even an open-ended commingled fund often requires early notification and substantial waiting periods for account transactions. Finally, to attain portfolio diversification across property types and regions, a share in a vast portfolio, or shares in multiple portfolios, is required.

There is no substantive difference in the underlying real estate exposure between holding an interest in a private real estate partnership and holding a REIT. However, ownership of REIT shares addresses many of the investment concerns associated with private real estate partnerships or pools. REITs offer transparency and liquidity far exceeding that of most private real estate investments. And regional and property-type diversification is achieved more easily in public real estate than in private real estate. For example, a REIT index fund may hold more than 100 REITs, each representing many underlying properties across geographic regions.

4 While illiquidity potentially leads to a return premium in most assets, whether or not such a premium exists for an investment pool is the subject of an ongoing debate in the investment industry.
Is equitized real estate an effective proxy for the real estate market?

Public real estate options do come with their own unique concerns. Given the desirable investment qualities of REITs, for many investors the primary question is whether REITs can effectively provide exposure to real estate. While REITs constitute a small portion of the real estate market and have performed quite differently from other real estate vehicles in the short term, we believe there are at least two fundamental comparisons leading to the conclusion that REITs are representative of the commercial real estate market—geographic representation and long-term performance.

Most important, REITs and private investments—whether held directly or through a private investment pool—hold similar collateral. Indeed, both private and public investment pools derive returns from holding portfolios of commercial real estate. As Figure 4 suggests, the REIT market is well-diversified across property types, including a significant portion of the property types that are likely to be included in a private investment pool. In addition, a REIT index is geographically diversified, representing holdings from all areas of the country. The range of property types and geographic regions suggests that a broad REIT index is more representative of the aggregate real estate market than any single REIT or private investment pool.

In addition to market makeup, it is instructive to examine the performance of REITs relative to that of private holdings. Given that commercial real estate represents the underlying holding of both a public and a private investment vehicle, returns should be similar, particularly over the long term. However, because the primary public and private benchmarks have modestly different constituents (the NCREIF Index includes office, retail, industrial, and residential properties, and a very small percentage of hotels, and includes properties across the range of development stage), we would expect some differences in returns, particularly in the short term. To help illustrate this concept, Figure 5 shows that since 1984 (the inception of the NCREIF transaction index), the performance of public and private real estate has not been meaningfully different over longer periods when private real estate is adjusted for differences in how benchmark returns are reported (see the note below Figure 5 for details). From this perspective, investors in public or broad private real estate indexes would have ended up in essentially the same place over longer periods of time, albeit by different routes.
While the use of public real estate as a proxy for the commercial real estate market seems reasonable, it is clear that returns for public REITs and private pools may differ significantly in the short term, as seen in Figure 6. In this figure we show that over 3-year periods, the NAREIT and NCREIF transaction indexes have performed quite differently, even as Figure 5 demonstrated performance similarities over longer periods. This could be due to differences in holdings or, more important, to a potentially significant short-term relationship between REITs and public equity markets.

Source: Author's calculations using data from NAREIT and NCREIF, MIT. Note: Analysis holds using alternate REIT benchmarks.

Past performance is no guarantee of future results.
Arguments against using equitized shares of real estate investment companies

As a result of the potential for short-term performance disparity, the primary argument against using equitized shares as a proxy for the commercial real estate market is the correlation of the equity market with the performance of REITs—particularly in the small-cap value sector. However, while higher historical correlations between REITs and small-cap value stocks (versus alternate equity benchmarks) suggest some return variation is related to the movements of the small-value sector, a significant portion of return variation (approximately 50%) is uncorrelated, indicating substantial independence.

The primary differences between REITs and traditional equities are the core businesses and the primary drivers of earnings growth. REIT earnings are driven by the net operating income of the property holdings and to a lesser degree the appreciation in the value of properties. In contrast, traditional corporate earnings are driven by growth in sales revenue for products and services. As a result of the difference in business fundamentals, there may be other significant differences between traditional small-value stocks and REITs, as illustrated in Figure 7.

A second argument commonly used against REITs is that equitization may not work because it hasn’t worked with other asset classes—mainly commodities. The impact of equitization is often evaluated in the commodity markets, where equity market sectors such as those focused on energy or mining firms can be used as proxies for a commodity index itself. However, investing in real estate typically centers on a decision about whether to choose a publicly listed REIT or a privately held partnership to gain exposure—that is, a choice between public and private vehicles, not a decision about whether to hold property outright or as a share in a managed portfolio of properties. The equitization of commodities involves deciding whether to invest in the commodity itself (say, a gold bar), in commodity futures (the gold component of the Standard & Poor’s Goldman Sachs Commodity Index), or in shares of companies whose primary business is the production of that commodity (gold-mining companies).

<table>
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<th>Figure 7. REIT fundamentals differ from those for small-cap value stocks.</th>
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<td><strong>Small-cap value</strong></td>
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<td>Annualized volatility</td>
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Source: Russell, NAREIT. Data from 1989 through 2008; 1989 represents the start of our Russell 2000 Value Index dividend yield data.
Commercial real estate market exposure

For investors in any asset class to obtain the risk and return characteristics of the market, an investable market index is required. However, there are two primary concerns with commercial real estate indexes. First, existing benchmarks (such as the NAREIT and NCREIF indexes) represent only a small portion of the U.S. commercial real estate market. For example, since investment holdings account for less than $450 billion in commercial real estate, approximately 90% of the $4.6 trillion market is probably closely held by real estate developers, brokers, and long-term investors and is therefore unavailable for transaction. This is somewhat different from the equity and debt markets, where public holdings make up a much larger portion of the total market capitalization of each asset class (Figure 8). The small proportion of investment holdings (see the bar in the right panel of Figure 8) probably stems from the significant costs involved with buying, selling, and maintaining a commercial real estate property.

Second, only the NAREIT Index has historically been investable, as the NCREIF Index represents an aggregation of private investor holdings. In fact, outside of a REIT index fund or an ETF, any investment in commercial real estate is idiosyncratic, and subsequently a bet on manager skill. Investment performance therefore entirely depends on the selection of a manager and that manager’s skill. As the hypothetical illustration in Figure 9 on page 10 demonstrates, a REIT index fund or an ETF investing across multiple REITs can provide significantly greater exposure across property types and locations. Such an investment can therefore provide a systematic exposure to the real estate market, relative to the idiosyncratic exposure inherent in concentrated portfolios.
The difference between idiosyncratic and systematic exposure is important because investors typically model asset allocation and expected portfolio risks and returns based on systematic exposures. In other words, investors put the characteristics of a particular asset class into a model to determine an appropriate allocation. Many assets, such as domestic and international stocks and bonds, can be replicated to capture the market beta,\(^5\) but specialized investments such as privately held commercial real estate do not yet offer such an option to the same degree. The derivatives markets may eventually help investors to track private real estate indexes, but such opportunities thus far are limited. The importance of manager selection therefore results in a potentially wide distribution of return possibilities. In fact, if investors receive the return for the overall real estate market, it is more likely to be because of luck than because they found an investment pool that is diversified enough to replicate the true characteristics of the aggregate real estate market.

Figure 10 demonstrates the relationship between idiosyncratic risk and systematic risk. In Figure 10, we plot 5-year annualized returns of individual REITs over time, with each dash representing a 5-year return for a specific REIT.\(^6\) For example, in 1993, 28 REITs had 5-year returns, while in 2008, 85 had 5-year returns. The dispersion of the 5-year returns simulates the idiosyncratic risk and distribution of alpha relative to the real estate market. We also plot the index return (beta) as well as the 25th, 50th, and 75th percentile returns. Obviously, in any given period, 50% of firms will be above the median, and 50% will be below the median, but when evaluating the actual distributions, it is instructive to look at the range of returns as well as where the index falls relative to the distribution. While the market, represented by the NAREIT Index, was never negative during this time period, in every instance, a percentage of firms posted returns well below “average.”

It is also instructive to evaluate the spread between the 25th and 75th percentiles. In most years the 5-year annualized spread was between 15% and 20%. Such a wide spread sheds light on the challenges associated with implementing an asset allocation strategy with undiversified investment vehicles. In this example, investors can own the REIT market, and so the decision to invest with a manager for alpha or the index for beta can be a part of the investment process. However, there is no such investable index for the remainder of the commercial real estate market. As a result, investors in private partnerships must believe that their managers can consistently deliver returns above the median return for all private partnerships and above the index return for public REITs.

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5 Beta is a measure of the volatility of a security or a portfolio relative to a market index. Alpha is a measure of a portfolio’s risk-adjusted excess return versus its effective benchmark.

6 We use REIT returns here because unlike return data for private partnerships, REIT data are accurate and free of biases. Further, a REIT can be thought of as a publicly traded version of a private partnership or private investment pool. The investment managers invest in similar properties, with similar goals, objectives, and risks.
Portfolio impact and potential allocations

When evaluating the role of real estate in a portfolio, an investable index must be used. We use the NAREIT Index to approximate the investable beta of the real estate market. This presents an obvious challenge: We have provided evidence that supports the idea that commercial real estate is a separate asset class, naturally leading to asset-allocation decisions similar to those involved with stocks and bonds. Further, we believe that REITs represent the best opportunity for most investors to gain access to this asset class. The waters are muddied, however, because while REITs represent exposure to a unique asset class, they are in fact equities.

Because REITs are equities, to justify their inclusion in a financial model as a unique asset class, investors must not only desire exposure to real estate, but must believe that REITs offer an exposure fundamentally different from that provided by other equities—a case that is reasonably strong. For example, the returns of most equities may be almost entirely explained by three key variables—the returns of the broad equity market, a size factor (large or small), and a style factor (growth or value). These are commonly known as the Fama-French risk factors. However, returns for REITs are only partially explained by these fundamental factors. In fact, the real estate holdings constitute the largest single influence on REIT returns. It can be argued, therefore, that investors gain access to the previously unavailable real estate market through REITs.

7 In analysis not shown here, we find that the Fama-French factors explain only 50% of REIT returns, leaving a large error term, likely representative of the real estate asset.
Although REITs are part of the equity market, it’s clear that they offer a unique exposure to commercial real estate that is unavailable in other equity sectors. It therefore makes more sense to assign risk and return values to REITs than to alternate equity sectors such as materials or health care. But because a market-weighted portfolio represents a forward-looking mean-variant efficient portfolio, investors must factor in the exposure already contained within the active and indexed portions of their existing portfolio.\(^8\) In fact, for many investors, this may represent the only commercial real estate exposure required. But while many investors should maintain their legacy asset allocation, certain investors may have rational reasons for over- or even underweightings to real estate.

The decision to deviate from a legacy asset allocation is typically accomplished using some form of a portfolio optimizer along with the investment objective function of the portfolio’s mandate. While many advanced tools exist, the two most common have been a historical mean-variance analysis and forward-looking expected risk and return frontiers. To illustrate the historical long-term impact of REITs on a portfolio, we present Figure 11. It shows a series of four efficient frontier curves covering different time periods, each accounting for a portfolio including REITs at their current representation within the equity market and a 10% additional weight. The figure on the left shows an analysis covering the entire period 1972–2008, while the figure on the right shows the same analysis but with ending dates at 2000, 1995 and 1990.

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8 Investors with heavy allocations to active equity managers will be less able to control the total allocation to REITs, as the underlying managers themselves may be overweighting or underweighting REITs within their specific portfolios. In fact, a given strategic allocation is known for certain only if the entire portfolio is indexed.
Several conclusions may be drawn from such an analysis. Most important, the time period evaluated is the primary driver of the expected impact of adding REITs to a traditional portfolio. Second, until data from the last several years were added, even a 10% allocation to REITs only modestly improved the performance of a standard portfolio. Historically, returns and volatility are primarily determined by the allocations to stocks and bonds, regardless of the allocation to REITs.

Such an analysis also has several important drawbacks. Using historical mean-variance analysis assumes that history will be repeated in exactly the same way going forward. As relative valuations change and markets tend to be cyclical, this is a difficult assumption. While the analysis results illustrate what happened historically, they also assume that the investor was fully invested at the exact weights represented for the entire holding period. An extensive literature in behavioral finance indicates that investors do not act that way.

Forward-looking expectations come with a new set of concerns, including, but not limited to, predicting returns, risks, correlations, and cross correlations for each portfolio asset. There is no strong evidence that we can forecast these with confidence.

**Alternative analytics**

**Broaden asset-allocation analysis across time**

Because point-in-time analysis such as that used with Figure 11 is entirely dependent on the time period covered, investors should supplement such an analysis with additional perspective. One simple way is to look at the impact of adding REITs across time. **Figure 12** does this and corroborates the general volatility reduction (see the left-hand graph) observed in Figure 11. But we also see that real estate has not consistently lowered volatility. And the return boost (see the right-hand graph) presented in Figure 11 is not nearly as constant as predicted by the historical model (and was significantly augmented in recent years).
Incorporate fundamentals and forward expectations

Should investors decide to pursue a strategic overweighting or underweighting in real estate, they should evaluate historical relationships in conjunction with forward-looking analysis. For example, Figure 13 plots the historical relationship between the price-to-earnings ratio of REITs and the price-to-earnings ratio of the U.S. stock market in brown, and the REIT dividend yield in blue. While the long-term averages (gray and black, respectively) are relatively stable, there have been periods of significant short-term volatility, none more noticeable than at the end of 2008 when yields spiked as REIT prices fell.

As with any asset, the present value of real estate is determined by expectations of future cash flows (income and expected value upon sale). Given that REIT earnings and valuations are driven by the earnings and valuations of the underlying real estate holdings, the increase in relative valuations since the 1990s could indicate expectations of accelerated growth in either property values or rental incomes, or some combination of the two, greater than earnings growth in the broader stock market. While rents have been growing at accelerated levels, they cannot significantly outpace inflation over very long periods, simply because rental payments are both a primary and indirect cost that is ultimately included in measures of inflation. Figure 14 suggests that while income and income reinvestment have accounted for the majority of historical real returns for REITS, real P/E expansion (shown here in the form of price returns) has been volatile.

9 The current valuations could also represent the expected impact of the REIT management team. The market may believe that REIT management teams are well-positioned and skilled enough to add significant value. Because of the potential impact of REIT management, investors should not expect a REIT stock to always perform in-line with real estate—depending on the environment, REITs may trade at premiums or discounts to the underlying value of the real estate assets.
Over the long term, we expect there to be a reasonable balance between the current market value of the asset and the discounted value of expected future cash flows. As a result, assumptions about total returns should be based primarily on expectations for inflation and sustainable real income returns. To account for P/E expansion or contraction, investors can add upper and lower limits based on the historical volatility of the price return component. For example, using the 3-year numbers in Figure 14 as a guide, investors might set forward expectations at 2.5% from inflation, 2% to 5% from real income returns, and an additional plus or minus 20% in price expansion or contraction (20% represents two standard deviations for the 3-year annualized price returns). The range of expected returns would therefore be −15.5% to 27% annualized over any given 3-year period. Where actual return expectations fall within the range largely depends on the investor’s analysis of current valuations and future prospects for the asset class.

Considering a strategic allocation

Given the long- and short-term historical perspective provided in Figures 11 and 12, combined with the relative valuation of real estate shown in Figures 13 and 14, how should investors interested in modifying their strategic allocation approach the decision?

In order to advocate a specific allocation to REITs, an investor must first believe that a broad REIT index fund or ETF accurately represents systematic exposure to commercial real estate. If the investor does not believe that, but still desires exposure to commercial real estate, then an allocation to private real estate is driven by confidence that the private manager will consistently produce returns above those achieved by the median private manager as well as the REIT Index. If the first condition does hold, the investor must be comfortable with potentially significant deviations from other real estate indexes in the short term (Figure 6). And the investor must be confident that the exposure to real estate outweighs the inclusion of REITs in the public equity market.
In the end, for investors to justify a higher or lower allocation to REITs, they must: (1) be able to point to a real estate risk factor either under- or over-represented in the current portfolio, (2) believe that the risks and returns of a real estate investment are different from what the market believes (and by extension that there are investors willing to take the exact opposite view), or some combination of the two. Given the possibility that these conditions may hold for certain investors, strategic allocations may be independently managed. Going forward, strategic allocations to REITs should be based on a client’s risk and return objectives and constraints, and portfolios should be periodically rebalanced to those allocations.

Conclusion

Commercial real estate is a unique and significant asset class. We believe that real estate has a place in the investor portfolio because of its diversification benefits and its role in the market portfolio. We have shown that the vast majority of the commercial real estate market is closely held and off the market for most investors but that public real estate represents a reasonable proxy for those investors interested in a systematic exposure to commercial real estate. Whether investors choose a public or private investment vehicle depends largely on whether they decide to focus on manager skill in the pursuit of real estate alpha or aim to obtain the market return through a systematic exposure.

We have also shown that public REITs represent a reasonable exposure to real estate for many investors. While larger or smaller allocations may be appropriate for certain investors, most have been better off maintaining the allocation represented in the legacy portfolio through existing equity mandates. Given the modest percentage of the market that is allocated to commercial real estate investment, many investors seem to recognize the potential costs of large allocations—increased exposure to public real estate constitutes a significant sector overweight, while private real estate adds manager risk, higher costs, and illiquidity.

Finally, should investors pursue an alternative strategic allocation, they should take care to evaluate not only historical relationships but also current and expected business and market fundamentals.
References

CB Richard Ellis, 2004. Property Investment Funds: On the REIT Road?


Lindahl, David P. Making an Allocation to Real Estate, Kennedy Associates Real Estate Counsel, Inc.


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