

# Commercial Real Estate

## From the Ground Up

- What drives commercial real estate returns and valuations
- How we assess real estate portfolio risk
- How much investors should allocate to REITs
- How direct real estate investors should size and allocate their liquid assets
- How we approach wealth transfer strategies for illiquid property holdings

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# Table of Contents

<b>Significant Research Conclusions</b>	<b>1</b>
<b>Introduction: Not Your Father's Property Market</b>	<b>3</b>
From Bust to Boom: Investors Get Real	3
The Property Puzzle: New Paradigm or Old Story?	3
Mapping the Research Landscape	4
<b>Laying the Foundation: The Asset Class</b>	<b>5</b>
Commercial Real Estate Historically: A Stock/Bond Hybrid	5
Commercial Real Estate Today: Prices Spike, Yields Shrink	5
The Building Blocks of Commercial Real Estate: A Valuation Analysis	7
Real Estate Fundamentals: The Long and Short of Income Growth	7
<i>A Closer Look</i> : Appreciating Land	10
The Valuation Quandary: Market Cycles, Secular Change, or Both?	11
Capital Markets Pressures: Rates Slide, Hurdle Drops	11
The Role of Securitization: Evolution or Revolution in Mortgages?	12
Business Cycle Volatility on the Wane: The Great Moderation	13
Conclusion: Stay Strategic	14
<b>From Asset Class to Individual Portfolio: Assessing the Risk and Return Profile</b>	<b>15</b>
The Alchemy of Leverage: Turning Steady Income into Growth Opportunity	15
Concentration Conundrum: Converting a Property into the Market	17
<i>A Closer Look</i> : Residential Returns—Is a House Ever More than a Home?	18
Development Activity: Adding Value and Volatility	20
Real Estate Risk and the Allocation Implications	20
<b>Constructing an Allocation Framework</b>	<b>21</b>
Allocation, Allocation, Allocation: Public vs. Private	21
Going Public: The Mall in Your Portfolio	21
Going Global: Dialing Up Development and Diversification	22
The Role of Global Real Estate Securities in the Portfolio	22
From Asset Allocation to Asset Location: A Taxing Decision	23
Private Property: A New Definition of Risk	24
Bridging the Liquid and Illiquid Portfolios	25
Getting a Lifestyle Reserve: The Long-Term View	26
Building the Real Estate Reserve: Gauging the Short-Term Liabilities	26
From How Much to How: Constructing an Allocation Framework	28
<i>Feature</i> : Real Estate and the Estate: Wealth Transfer Strategies for Illiquid Assets	30
<b>Additional Information</b>	<b>33</b>
The Data Dilemma	33
Exploring the Investment Landscape	34
<b>Appendix</b>	<b>36</b>
More on Real Estate and the Estate	36



# Significant Research Conclusions

Attracted by properties' juicy yields and an attractive rate environment, investors have bid up commercial real estate prices to record highs. But cash flows have not kept pace with rising prices; as a result, real estate yields today stand at historical lows. This has caused many investors to wonder: Does commercial real estate still offer an attractive enough risk/return trade-off to warrant a meaningful allocation? **Our research suggests that the long-term investment case for the asset class remains intact.**

**Investors should expect the broad asset class to earn long-term returns in the 7–8% range—lower than the historical average, but still appealing compared with most other investment opportunities across the global capital markets.** This assumes income yields (after capital expenditures) in the 5% range, inflation-like income growth of 2–3%, and real estate valuations remaining richer than they've been historically due to important secular changes that have lowered investor risk.

- Specifically, the growth in the securitization of real estate equity (via real estate investment trusts, or REITs) and debt (via commercial mortgage-backed securities, or CMBS) has increased the ability of both investors and lenders to better diversify their risks as these markets have become much more liquid and transparent than in the past.
- In addition, a general reduction in business cycle volatility globally—apparent in more consistent GDP growth, a more predictable inflation rate, and less need for wide, corrective swings in monetary policy—appears to justify higher valuations across a broad range of asset classes.

- But real estate remains cyclical, and some of the factors that have boosted returns in the recent past, such as unusually low interest rates and mortgage costs, could move against the asset class in the short term—and a fall in valuations back toward historical averages would cut prices by 25%. For this reason, investors need to carefully monitor the risk profile of their real estate holdings and their overall asset allocation.

Most investors should access the commercial real estate market via publicly traded real estate securities (such as REITs). Investors benefit from professional management and the broad diversification these vehicles offer across both property type and geography. **Growth in the sheer number of opportunities presented by the global real estate markets, combined with their low correlations to stocks and bonds, leads us to recommend a 10% allocation to global real estate securities.**

- Global real estate allocations should be sourced half from global stocks and half from bonds.
- For US investors, we recommend that this allocation be held only in tax-sheltered accounts, given the relatively tax-inefficient nature of annual, mandatory REIT distributions.

*(continued, next page)*

**For direct property investors, we have developed a framework to determine the appropriate size and allocation for their liquid assets given the specific nature of their real estate portfolio.** It is not easy to gauge precisely the level and character of risk in any commercial real estate portfolio, where the degree of concentration, leverage, and development activity employed can significantly alter the risk/return profile.

- The more concentrated the mix of buildings, the more returns become driven by an investor's skill at selecting and managing properties rather than the fundamentals of the broad real estate market.
- Leverage increases volatility and introduces cash-flow and refinancing risks that must be closely monitored, particularly for concentrated holders.

- Development-oriented properties require significant up-front capital and management skill, which increases return potential as well as volatility and insolvency risk.

Setting aside capital sufficient to manage the real estate portfolio through various market cycles is crucial, as is a plan to ensure that cash flows will be available to meet the investor's core living expenses.

**Direct real estate investors should build their liquid portfolios to counterbalance the unique risks posed by their real estate assets and liabilities and to insulate themselves and their families from the impact of worst-case outcomes. ■**

# Commercial Real Estate

## From the Ground Up

### INTRODUCTION: NOT YOUR FATHER'S PROPERTY MARKET

#### From Bust to Boom: Investors Get Real

Around the turn of the millennium, cocktail conversation shifted from whisperings of the latest tech-stock wonder to exclamations about the incredible rise in property values. The bust in virtual space seemed to dovetail with the boom in physical space. And for real estate, it was a boom for the record books.

While much has been written about the euphoria that overtook the residential-housing market, now it's *commercial* property that is increasingly catching investors' attention. As of this writing, in mid-2007, home prices have started to dip, while commercial real estate has continued its unprecedented run. And it's not just the recent performance that is causing investors to take a fresh look at their exposure to commercial real estate. These properties have generated healthy cash flows, posted low correlations to other assets, and provided a valuable hedge against inflation. It's clearly an asset class that warrants consideration for a long-term strategic asset allocation.

#### The Property Puzzle: New Paradigm or Old Story?

Despite these appealing attributes, buying buildings—whether office, retail, apartment, or warehouse—hasn't been all that popular with most investors, at least until recently. That's because unlike stocks and bonds, which investors trade daily in large and liquid public markets, the public market for real estate historically has been quite small. For most investors, entry into the market has been through private or direct transactions that typically require significant up-front capital and

ongoing access to high levels of mortgage financing. Plus, liquidity is limited, and owners may need considerable expertise in both property management and the dynamics of the local economy to ensure investment success. These factors have made it difficult to build a diversified portfolio and have kept investor-held property largely in the hands of wealthy families with real estate expertise and an appetite for holding concentrated portfolios, and institutional investors with significant resources and low liquidity requirements.

But the dynamics of this market and the investor base have been changing. Innovations on Wall Street have helped transform the way property is bought, sold, and financed. Publicly traded debt and equity instruments like commercial mortgage-backed securities (CMBS) and real estate investment trusts (REITs) are gaining traction. What used to be a private, local, illiquid asset class is now far more accessible, liquid, and integrated into the global capital markets.

All of this has positive implications for investors in both the public and private commercial real estate markets. The increased liquidity these securities bring is providing property holders with greater access to global capital flows, lower-cost financing, and easier diversification. In our view, that's been a major driver of the recent boom and has supported much richer valuations. But it's unclear if these changes in the asset class and the spike in valuations are for real—and for long. In other words, can we say that a new paradigm has arrived for the property

investor, ushered in by secular changes in market structure, or is the market simply at a cyclical high and the recent exuberance for real estate just the latest instance of that old story, a short-lived speculative bubble? Investors need to understand whether investment remains worthwhile, and if so, how much of their funds to allocate.

### Mapping the Research Landscape

In light of the remarkable developments in the market and the growing prominence of real estate in investors' asset allocations, we embarked on an in-depth analysis of commercial real estate, examining both the private and public markets. But more important, we have tried to dig beneath the primary investment approaches—direct ownership or securitized REITs—to understand the fundamental factors driving the asset class itself. Our analysis addresses a broad range of issues relevant to wealthy families and institutions:

- In “Laying the Foundation” (pages 5–14), we examine the drivers of return and risk and assess the short- and long-term outlook for the asset class—a fully diversified, unlevered national cross section of income-producing properties, including office, retail, industrial, and residential apartment buildings.
- “From Asset Class to Individual Portfolio” (pages 15–20) shows how decisions relating to the degree of leverage, diversification, and development activity within a portfolio can alter its risk and return profile.
- Finally, in “Constructing an Allocation Framework” (pages 21–32), we explore the critical asset allocation decisions for investors in global real estate securities as well as for direct holders of commercial properties.<sup>1</sup> ■

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<sup>1</sup> In the US, publicly traded real estate securities take the form exclusively of REITs, pooled investment vehicles that invest primarily in income-producing real estate or real estate-related loans or interests. Outside the US, there are other forms of securitized real estate, including real estate operating companies (REOCs), which differ in structure and tax status from REITs (for more on the distinctions between the two, see page 22). But the market is dynamic and the global landscape is changing: Many countries are adopting ownership structures and creating incentives for assets to be sold into publicly owned REITs. At present, however, when referring to the global market for publicly traded real estate equity, it is more accurate to speak about global real estate securities than simply REITs.

## LAYING THE FOUNDATION: THE ASSET CLASS

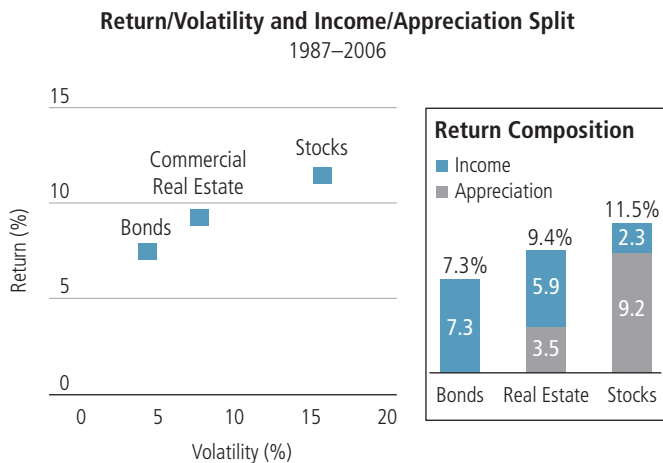
### Commercial Real Estate Historically: A Stock/Bond Hybrid

For all their familiarity as structures, commercial properties have never been a core component of most investors' asset allocations. And it hasn't been performance that's gotten in their way. Over the last 20 years, returns for this asset class—at almost 10%—have come in just a bit below stocks, but with volatility much closer to bonds (*Display 1*).

What's more, performance has been well-balanced, with approximately two-thirds of returns coming from current income (cash generated by rents, net of operating and maintenance expenses) and the remainder being driven by property price appreciation (*Display 1, inset*). Its combination of strong income and growth characteristics makes commercial real estate seem like an interesting stock/bond hybrid.<sup>2</sup>

Display 1

#### Happy medium: Commercial real estate offers the best of both worlds—income and appreciation



Source: Global Financial Data (GFD), Lehman Brothers, MIT Center for Real Estate (MIT CRE), National Council of Real Estate Investment Fiduciaries (NCREIF), and Standard & Poor's

<sup>2</sup> Understanding the data sources and data quality is critical in researching real estate valuations and returns. For a complete discussion of commercial real estate market data, see "The Data Dilemma" on page 33. Where possible, we are using a transaction-based index to measure price changes in the private commercial property market (the MIT/NCREIF Index). This index, which includes data beginning in 1986, avoids the time lags and valuation subjectivity inherent in traditional appraisal-based price measures, and is more representative of the broad asset class than the securitized REIT index, which reflects leveraged returns and whose data prior to 1992 do not fully represent the underlying value of the real estate market.

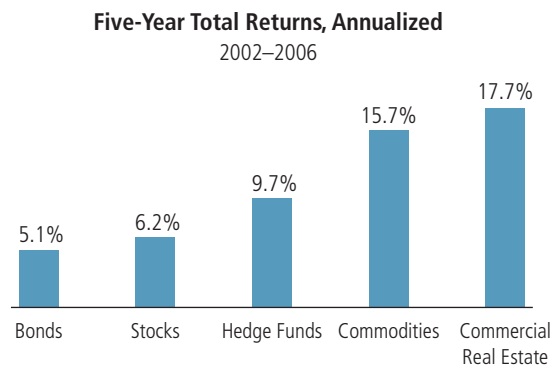
### Commercial Real Estate Today: Prices Spike, Yields Shrink

More recently, the prominence of commercial real estate as an *investable asset class* has been cycling to a new high. Capital flows began to accelerate as the stock market bubble deflated from 2000 to 2002 and investors fled high-flying growth companies for stability in real estate, which offered tangible assets and positive cash flows. What could be more old economy, more brick and mortar, than property and the stable income its buildings generated? Investors flocked to it, and since then commercial real estate has outperformed every other major investment category, including hedge funds (which saw record asset flows) and commodities (whose recent run-up reflects the bull market for raw materials over the last several years), as shown in *Display 2*.

But as real estate prices have moved higher and higher, the income that the properties throw off has grown at a much more modest pace; as a result, the income yield has been shrinking. At year-end 2006, the yield offered by commercial properties—also known as the *capitalization rate*—stood at an all-time low of 7%, down nearly a third from its historical

Display 2

#### Property's high performance: Is it experiencing a cyclical peak, secular change, or both?

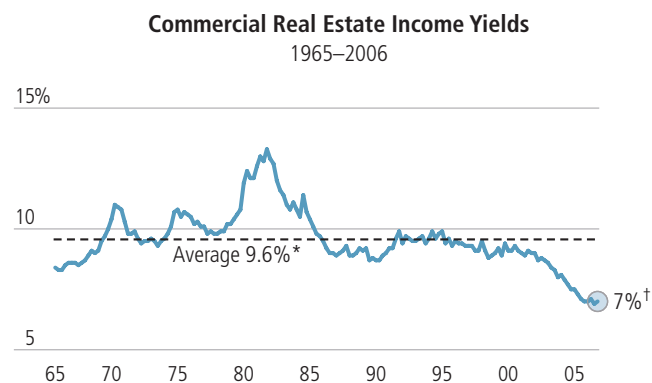


Bonds are represented by the Lehman Brothers US Aggregate Index, stocks by the S&P 500, hedge funds by the HFRI Fund Weighted Composite Index, commodities by the Reuters-CRB CCI Commodity Index, and unlevered real estate by the MIT CRE Transactions-Based Index.

Source: Hedge Fund Research, Inc. (HFRI), Lehman Brothers, MIT CRE, Reuters-CRB, and Standard & Poor's

Display 3

**As prices peak, real estate yields hit 40-year low**



\* Average of four major property types, 1965–2006

† Capitalization rate = net operating income/value

Source: American Council of Life Insurers (ACLI) and Real Capital Analytics (RCA)

average (Display 3). After accounting for the investment needed for ongoing capital expenditures, we’d place an investor’s actual income, or “cash” yield, at only 5%—a return on par with Treasuries!<sup>3</sup>

With yields this low, investors will become more dependent on continued price gains to earn their returns. Those prices can be driven by two sources (Display 4):

- **Future Income Growth:** If property income grows, real estate prices should follow higher at the same rate (assuming investors continue to place the same valuations on that income).
- **Valuation Changes:** Investors might be willing to pay higher prices for less income—as they have over the last several years (in real estate terms, *higher valuations* are represented by *lower income yields*).

But how much income growth can property investors reasonably expect? And can current valuations hold, or are prices likely to move lower, sending the income yield on real estate back to its long-term average? Were that to happen, prices would fall by 25%! These are the critical questions for all property investors today—whether they hold REITs or own the properties directly.

<sup>3</sup> It is important to distinguish between income yield (capitalization or “cap” rate) and cash yield, which is simply the cap rate minus the capital expenditures (capex) needed to maintain the properties. We have assumed throughout a capex estimate of 2% to derive our cash yield figure. Unless otherwise stated, the cap rates quoted here refer to an equal-weighted average of office, industrial, retail, and apartment property types. Running the analyses in this section for the individual property types would produce virtually identical results. The similarities between property type fundamentals and valuations far outweigh the differences.

Display 4

**Building wealth: How commercial real estate stacks up**

**Components of Total Return**



Source: AllianceBernstein

We’ve analyzed the drivers of real estate returns and the evolution of the asset class in forming our views. Our research led us to two main conclusions:

- **Returns will be lower:** While income growth rates can vary substantially over the short term, over the long term we’d expect growth not to exceed the rate of inflation. Combining current cash yields with inflation expectations of about 2.5%, we’d expect long-term returns in the 7–8% range.
- **Risk will be lower as well:** Investors should be willing to accept lower returns from real estate than they have in the past because investments have become easier to diversify, more liquid, and more transparent than they used to be. Plus, broader capital market forces, like lower interest rates and a general smoothing of the business cycle, have propped up prices across nearly all asset classes. For these reasons, we believe that in the long term, real estate valuations can remain somewhat higher than they have been historically. We’d also note that real estate prices are linked to inflation and are influenced by a unique “space market” cycle, making real estate an attractive diversifier within a multi-asset portfolio.

In short, although real estate as an asset class has gotten pricier, some of its richness is justified by the decline in the risk of holding it. And while richer valuations do increase our concerns about short-term price movements, our analysis suggests that the long-term case for real estate investment remains intact.

## THE BUILDING BLOCKS OF COMMERCIAL REAL ESTATE: A VALUATION ANALYSIS

In order to build our case, we've analyzed a number of forces at play in the property market. First, there is the question of real estate fundamentals—the supply of and demand for space. Can the demand for property outpace supply and thus cause income to grow faster than it has in the past, offsetting unusually low current yields and boosting total return? Second, in considering the possibility of a shift in valuation, we also need to look at capital market forces like interest rates and mortgage spreads. Real estate needs to be priced so that an investor can earn sufficiently more than these rates for an investment to make sense. Finally, we look at how the risk of property ownership itself has evolved, given the influence of securitization as well as a general reduction in business cycle volatility, and how that might influence valuations. In our analysis, we examine each of these elements in turn.

### Real Estate Fundamentals: The Long and Short of Income Growth

#### Short-Term Income Growth

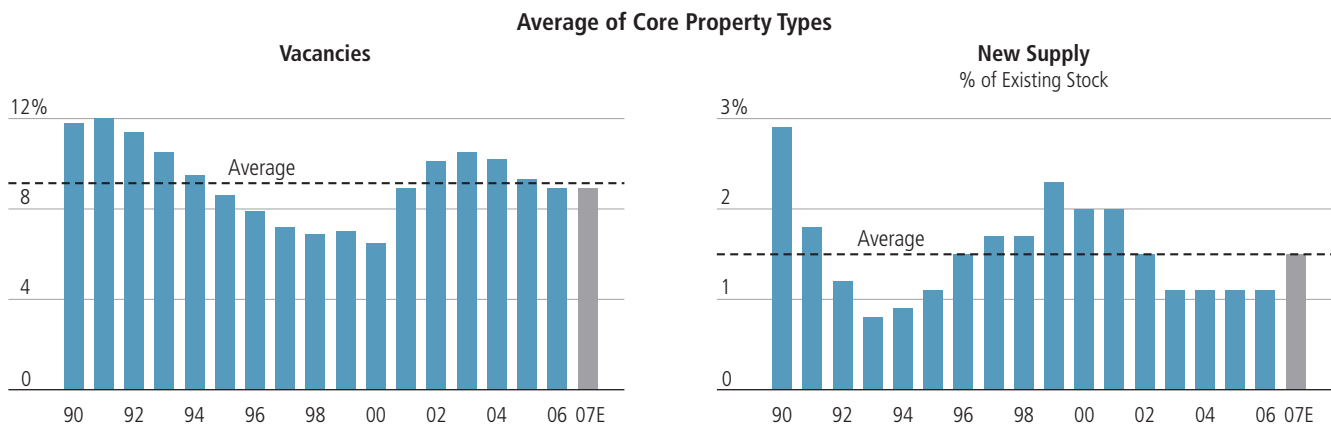
There's a good reason why investors historically have seen real estate as a safe, yield-bearing investment, similar to a fixed income asset. In the short term, real estate cash flows (from current leases) can be thought of as bonds with a maturity that's equal to the lease term and a credit quality that's dependent on the quality of the tenants. And while some leases automatically adjust upward for inflation, one should not expect significant income growth over the term of this "bond."

Any opportunity for growth comes when current leases expire. At that point, landlords and tenants alike are exposed to the local real estate cycle of occupancy rates and new construction, and with it the current asking rents prevalent in the market. This can be a boon or bane: A vibrant economy and an absence of new construction could cause demand to outstrip supply for space, pushing up rents; a recessionary malaise or an oversupply of space would reduce rents.

Today, commercial real estate occupancy and construction rates suggest that the market is pretty well in balance. As of this writing, vacancies stand at about their long-term average of 9% across all the major property types (*Display 5, left*). As for supply, it turns out commercial development has been restrained by two factors. Material costs have increased substantially due to the run-up in commodity prices globally. Meanwhile, residential developers' recent frenzy of overbuilding has bid up the price of land. As a result, the pace of new completions seems to have stagnated over the last few years, remaining below its long-term average of 1.5% (*Display 5, right*). The recent dearth of new building augurs well for near-term rent growth if the economy remains strong, but projections for full-year 2007 and beyond show a substantial pickup in supply on the horizon. In sum, there's no reason to believe that short-term income growth is at a cyclical low and set to move sharply higher.

Display 5

Supply and demand for space are currently in balance, so prospects for near-term income growth seem modest at best



Source: Reis, Inc.

### Long-Term Income Growth

With the short-term growth outlook modest at best, we shift our attention to commercial real estate’s long-term prospects. We’d expect income growth over the long term to more or less track inflation. Here’s why: Buildings, at base, are brick and mortar, land and labor. When finished, they produce a stream of cash flows for their owner. If the costs of developing a building increase, an investor will require greater rental cash flows to earn an attractive enough return.

Conversely, if it costs less to build, supply will gradually come online, pushing rents lower. Throughout history, when rents and development costs get out of line, the market inevitably corrects itself. So over the long term, the cost to build or “replace” a structure should be the proxy that investors use to set income growth expectations for the asset class.

Replacement costs for commercial property consist of approximately one-third land and two-thirds materials and labor (Display 6).<sup>4</sup> All three items bear a close relationship to inflation, the general movement of prices for goods and services in the entire economy. Labor typically appreciates at a rate slightly higher than inflation, and materials slightly lower. Taken together, building costs should

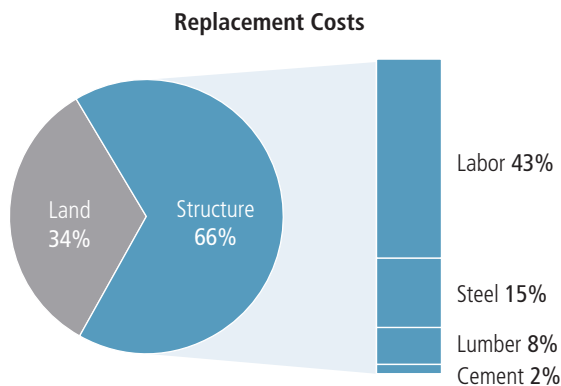
grow at or about the pace of inflation, and, in fact, they have (Display 7).

The wild card then is land. Some feel that land’s appreciation potential should be limitless, since at some point you simply run out—think of Manhattan, London, or Tokyo. But in reality, land will exhibit a growth rate above inflation only if it benefits from a step-up in value attributable to a change in usage: the rare transition from farmland to residential or from residential to commercial use. Barring such a shift, uncommon in a core metropolitan area, the aggregate value of land should rise in line with general inflation over the long term.

While data on land price growth are limited, we can analyze rents from the central business districts of mature cities to get some clues. And remember, since building costs grow at around inflation, any large divergence in long-term rent growth should be explained by the cost of land. Over the last 20 years, we find that rent growth in major US cities, on average, has not even kept pace with local price measures—an indication that land has generated subpar growth (Display 8). (For more on the role of land in the equation, see “A Closer Look: Appreciating Land,” page 10.)

Display 6

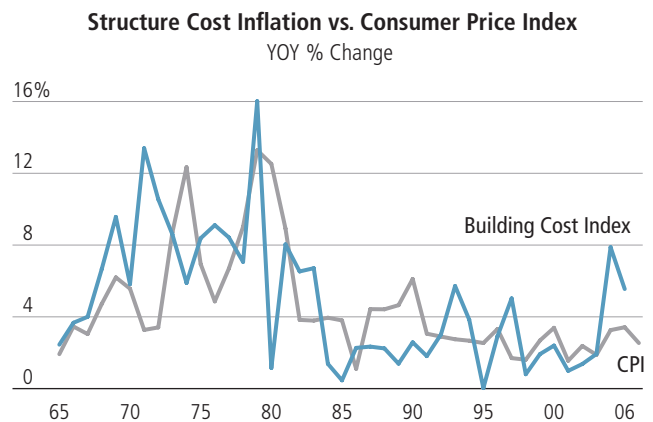
**Brick and mortar: Two-thirds of replacement costs are structure-related...**



Components of structure do not sum to 66% due to rounding.  
Source: McGraw-Hill Building Cost Index and AllianceBernstein

Display 7

**...and tend to move in line with inflation**

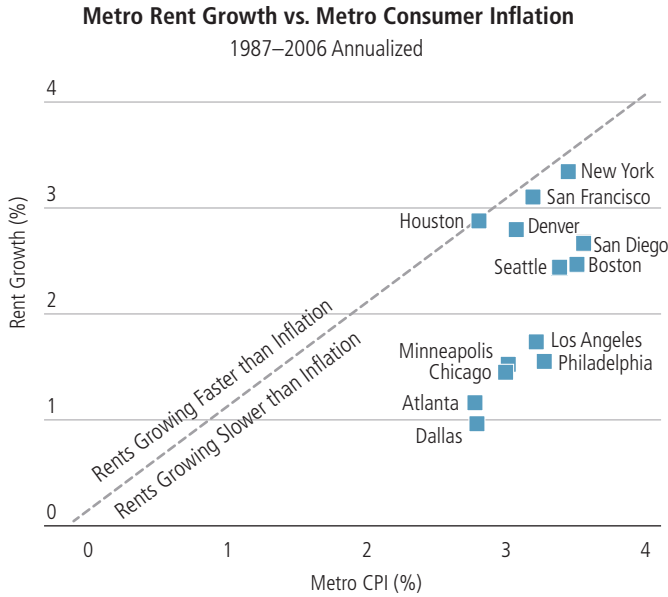


Source: Bureau of Labor Statistics and Engineering News-Record

<sup>4</sup> This breakdown of replacement costs represents the long-term countrywide average. It could vary significantly by property type, location, and time period.

Display 8

**Speculating about land values: Urban rents grow more slowly than inflation**



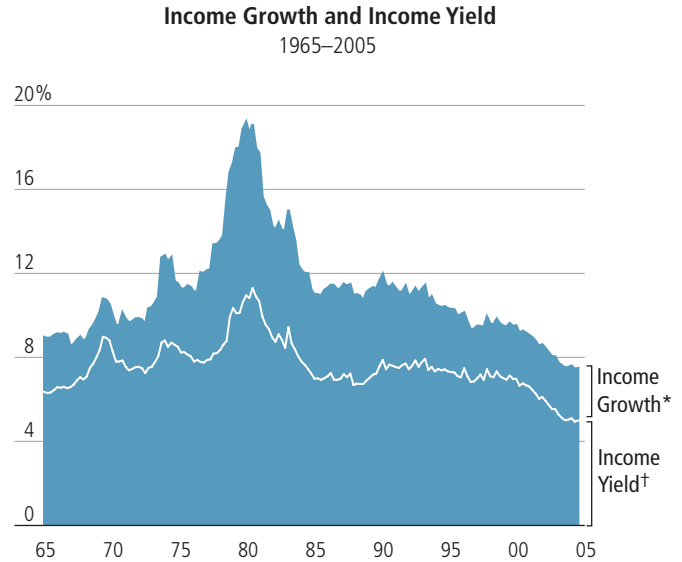
Source: Bureau of Labor Statistics and National Real Estate Index (NREI)

Today, market and consensus estimates for long-term inflation tend to hover in the 2–3% range, which is far lower than historical realized or expected inflation. If we add that rate of growth to real estate’s income yield and subtract maintenance costs (to get to our “cash” yield), we have an estimate of what investors might reasonably expect from this asset class. We’ve used this methodology to create a historical series of real estate return estimates. The picture that emerges suggests that the prospective total return of 7.5% currently offered by real estate is in record-low territory (*Display 9*).<sup>5</sup>

<sup>5</sup> Unfortunately, historical market-based inflation expectations data do not exist. To look at this crucial component of expected returns, we estimated inflation expectations from 1965 through 1979 and used inflation expectations in the Survey of Professional Forecasters from 1980 on; the Philadelphia Federal Reserve took over the survey in 1990. Our research suggests that investors form expectations based on recent and longer-term history, in this case trailing 12-month and 10-year inflation.

Display 9

**Not so great growth expectations: Income growth, like income yield, is at a 40-year low**



\*Data reflect historical inflation regressions from 1965 through 1979 and survey inflation from 1980 through 2005.

†Cash yields (income yield, or capitalization rate minus capex)

Source: ACLI, Federal Reserve, RCA, and AllianceBernstein

In our view, therefore, it seems unlikely that growth expectations in the market today, either in the long or short term, can make up for the current low level of yields. That leaves changes in valuation as the last remaining part of the equation.

## A CLOSER LOOK: Appreciating Land

“They’re not making any more of it” is a common refrain used to justify lofty estimates of land appreciation. With supply fixed, the argument runs, demand will drive prices, and demand for the right piece of land, like that for a given piece of art, can be nearly infinite. While potentially true in isolation, the notions of fixed supply and near infinite demand cannot be true in aggregate. In fact, the actual supply and demand dynamics for land create appreciation potential roughly equal to inflation, plus a slight premium for the occasional transformation of an area to its “highest and best use.”

That the value of land grows at only about the rate of inflation may come as a surprise. But there are a number of commonsense factors that help to mitigate its appreciation potential, including:

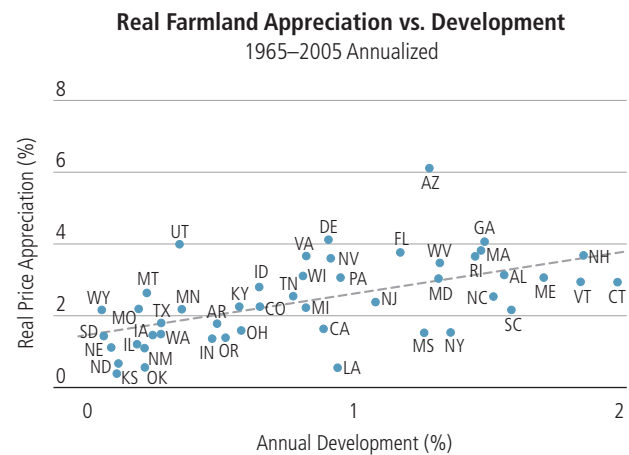
- **Mobility**—One can move from a central business district to cheaper suburbs or to other geographies altogether.
- **Substitution**—One can substitute capital for land, if zoning permits, by building higher in the existing location.
- **Technology**—Improved transportation and communications allow businesses and workers to disperse locally without a corresponding increase in cost and inconvenience.

Focusing on these factors should help correct much of the mythology around the question of land valuation and steer analysis toward more empirical data. The few long-term studies that exist suggest that commercial property appreciation in Manhattan and Amsterdam, two of the wealthiest and most densely populated cities in the world, barely kept up with inflation over the past one and four centuries, respectively.\* Consider the Big Apple: The lack of real land

appreciation in twentieth-century urban New York can be understood in the context of the vertical growth of the city, the advent of the streetcar, subway, automobile, and computer, as well as the commercial growth seen in neighboring urban and suburban areas.

Nevertheless, prolonged periods of strong real price appreciation are possible. As an area transitions from farmland to residential or residential to commercial usage, prices rise to a permanently higher level. The *display below* illustrates this premium by showing that farmland in states with the most development over the past 40 years exhibited the highest price appreciation.

### Prices track the climb in a “land use hierarchy” from farms to residential to commercial usage



Source: US Department of Agriculture and AllianceBernstein

So in aggregate, the rate of land appreciation can be understood as inflation plus a (re)development option. Pick the right parcel, geography, or time period, and this development option could be worth far more than underlying inflation. Choose poorly, and no amount of supply constraint or development potential will remedy the mistake. ■

\* “Four Centuries of Location Value: Implications for Real Estate Capital Gain in Central Places,” Piet Eichholtz and David Geltner, March 2002; “100 Years of Commercial Real Estate Prices in Manhattan,” William Wheaton and Mark Baranski, May 2006

## THE VALUATION QUANDARY: MARKET CYCLES, SECULAR CHANGE, OR BOTH?

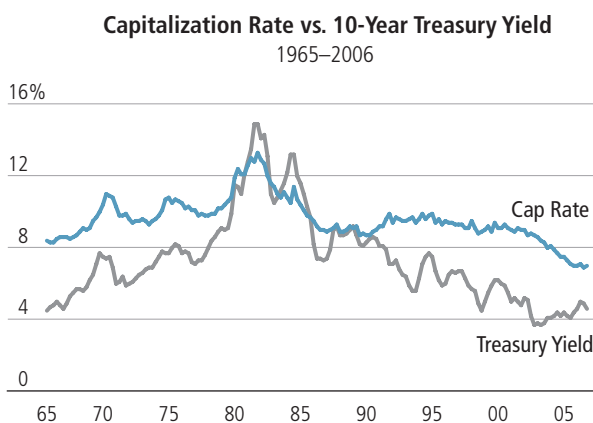
### Capital Markets Pressures: Rates Slide, Hurdle Drops

Thus far our analysis assumes that valuations remain intact. But is that likely? Even though current real estate valuations may seem rich, context is critical: Any investment needs to be judged relative to a number of factors, including the returns available from other investment alternatives, its funding costs, and the risk inherent in the opportunity. As it turns out, all three of these bases of comparison present a lower hurdle for the real estate investor today than they have historically. As long as these elements stay in place, we believe valuations can remain richer than they've been historically. Let's first focus on Treasury yields, a key capital market force that has been affecting real estate values.

The 10-year Treasury yield is key because it represents the risk-free alternative to which many long-term investments are compared. The difference or spread between the 10-year Treasury yield and commercial real estate's income yield, or cap rate, is an indication of the extra yield real estate offers investors for bearing risk. And just as real estate cap rates are well below their historical averages, the 10-year Treasury yield recently hovered nearly 300 basis points below its historical average (Display 10). Viewing the asset class through this lens explains at least some of the corresponding drop in commercial real estate's yields.

Display 10

### Cap rates have followed Treasuries to cyclical lows

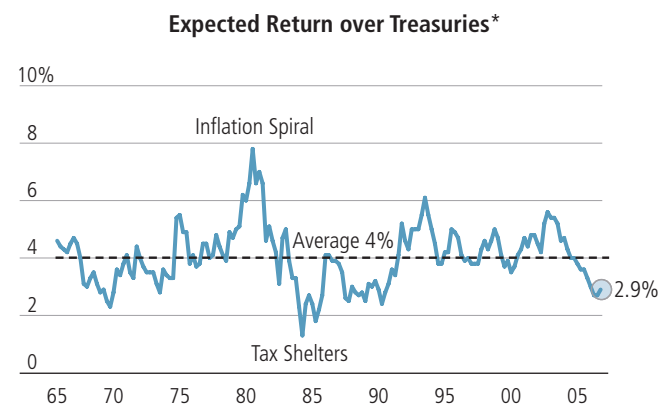


Source: ACLI and RCA

But comparing real estate's income yield to Treasuries does not go far enough, because real estate also offers growth potential. To truly understand the return environment, it's necessary to add the projections for income growth rates to real estate cash yields and compare *that* to Treasury rates. We can thereby gauge the additional return that real estate is priced to offer based on valuations at the time and the growth opportunity—it's a measure of the so-called "real estate risk premium." If the risk premium is high, real estate is being priced to offer significant additional return compensation for the risk of investing. If it's low, it may be that valuations need to come down before the asset could better compensate investors for the risk (Display 11).

Display 11

### Premium pressure: Real estate is now priced to return less than its historical average



\*Data reflect historical inflation regressions from 1965 through 1979 and survey inflation from 1980 through 2006.

Source: ACLI, GFD, Lehman Brothers, and RCA

With this analysis, one can see that real estate was priced to offer a significant return premium over Treasuries in the late 1970s: the result of a conjunction of high income yields and high income growth expectations that came along with the spike in inflation of the time. Then, in the early 1980s, the risk premium fell to record lows as investors bid up the value of real estate assets, and tax loop-

holes emerged that made real estate investing more advantageous for wealthy private investors.<sup>6</sup>

Due to the strong price appreciation of the last several years, the real estate risk premium has again dropped sharply and now stands at about 3% over Treasury yields (*Display 11, preceding page*). While not quite at historical lows, it is a full percentage point below its long-term average of 4%.

In analyzing these results, we'd emphasize two points. First, while the return expected has dropped substantially, it fell from what looks to be a cyclical peak in 2001, when the asset class was very attractively valued. Therefore, much of the recent performance was simply a reversion to the mean. Second, although the return opportunity is below the long-term average, we believe there are at least two justifications for this. One is the increase in securitization—converting debt instruments into tradable public securities—which is helping to drive a sharp compression in commercial mortgage spreads, lowering the cost of financing for real estate investors. The other is the broader compression of return expectations across all asset classes.

**The Role of Securitization:  
Evolution or Revolution in Mortgages?**

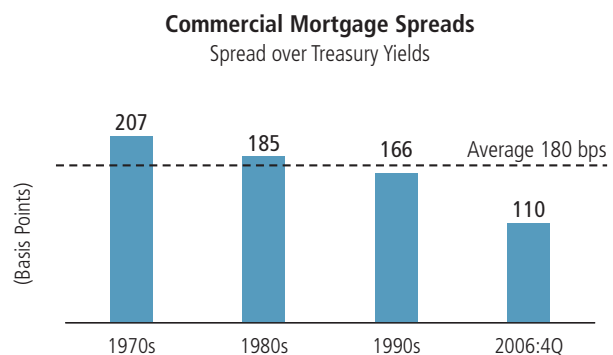
Real estate used to be privately financed by banks and insurance companies that made mortgage loans to investors and then carried all the credit risk on their balance sheet. Since the loans were concentrated and illiquid, the lender would demand a high interest rate and favorable terms on the loans.

Also, because these two industries provided basically all the financing, if they happened to encounter business headwinds, as they did in the early 1990s, access to mortgage funding could suddenly dry up, creating one of the greatest risks to levered investors: the inability to refinance their maturing mortgages.

Securitization changes this equation, lowering the risk of diminished access to funding and the cost of funding as well. It allows for the packaging of a pool of loans into a diversified, publicly traded security, which the lender can take off its balance sheet and sell to many new investors. This essentially creates another source of debt financing for real estate investors, reducing the risk of finding the lending market closed. Furthermore, freed from holding the burden of concentrated, illiquid loan portfolios, lenders can provide loans at lower rates.

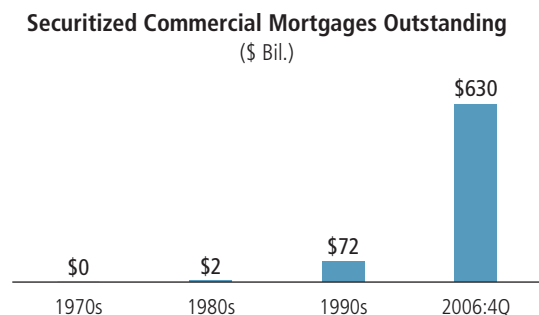
And they have. As *Display 12* shows, the commercial mortgage rate spread to Treasuries has fallen pretty consistently over the last few decades. More remarkably, this spread seems to have collapsed of late; as of

Display 12  
**Cyclical or secular shift: Mortgage rates drop...**



Source: ACLI and Barron's/John B. Levy & Co. National Mortgage Survey

Display 13  
**...as private debt markets go public**



Source: Federal Reserve Flow of Funds

<sup>6</sup> Changes to the tax code opened a tax loophole allowing wealthy individuals to use passive losses from real estate tax shelters to offset their other income, and a change in the depreciation rules for commercial real estate allowed investors to depreciate a building over 15 years rather than the prior standard of 40 years. The legislation that created some of these incentives was the Economic Recovery Tax Act, passed in 1981; the Tax Reform Act, which became law in 1986, helped to curtail them.

the fourth quarter of 2006, it stood 70 basis points below its long-term average. This collapse in mortgage spreads has coincided with a dramatic increase in securitization (*Display 13*). Fifteen years ago, less than 2% of commercial mortgages were held in commercial mortgage-backed security (CMBS) form; today more than 26% are.<sup>7</sup> In our view, this accounts in large part for the recent precipitous drop in mortgage spreads, which has lowered the return hurdle levered real estate investors must surpass, helping explain much of real estate's current lower risk premium to Treasuries.

But there's more, and with it more reason to believe that real estate's risk premium will remain below its historical average. As we said, an increase in the number of providers of debt capital has lowered refinancing risk for investors; similarly, there's been an expansion in the number and type of equity investors in commercial real estate as well. For example, real estate investment trusts—REITs—are publicly traded, professionally managed vehicles that bring new levels of liquidity and transparency to the sector. In the US alone, REITs, which have grown from under \$20 billion in market capitalization a decade ago to almost \$400 billion by year-end 2006, have dramatically increased the amount of capital flowing into real estate markets.

The changes to the usual risks of holding real estate assets have been enormous:

- **Concentration**—Cheaper and easier diversification has reduced the “concentration premium” required for holding real estate assets.
- **Illiquidity**—Cheaper and easier public market transactions have reduced the “illiquidity premium” required to own real estate assets.
- **Lack of transparency**—Improved pricing data, meanwhile, has reduced the “information premium” required to invest in opaque real estate markets.

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<sup>7</sup> Wall Street innovation in this area has continued with the morphing of commercial mortgage-backed securities structures into collateralized debt obligations (CDOs). The CDO market, which provides an outlet for higher-risk tranches of CMBS mortgage pools, increased in size in 2006 by more than 60% over the record volume in 2005, to reach nearly \$35 billion. The volume and velocity of debt market activity may raise concerns that the ample liquidity could be sowing the seeds of future problems.

In short, all of the essential activities related to ownership have evolved in the direction of greater efficiency and clarity: sourcing and qualifying investment opportunities; attracting capital; obtaining financing; buying the properties; securing a sufficient number of holdings; paying down or rolling over mortgages; and selling the properties and monetizing the illiquid investment. As the conventional risks of real estate ownership have shrunk, investors require less return to hold it, and the risk premium has therefore diminished.

### **Business Cycle Volatility on the Wane: The Great Moderation**

The decline in real estate risk is also tied to increased economic stability generally over the last 15 years, sometimes referred to as the great moderation. For example, take US GDP growth. Inventories, which are prone to wide swings, historically have represented about a quarter of GDP. But as the US has progressively exported its manufacturing capabilities, inventories have shrunk and today constitute only 14% of GDP. Moreover, real-time inventory management has reduced the volatility of raw stock fluctuations too.

Another example is a more predictable inflation rate. The decline in volatility in this key variable is due to a number of factors, one of which is an increase in imported goods as a share of consumption, which has had the effect of disciplining prices through a vast expansion in the quantity and diversity of their supply. This doesn't mean that we are now immune to inflation problems, but rather that any such problems are likely to develop more gradually than in the past, with fewer good and bad surprises, and each of lesser magnitude. This has many positive implications, most notably the reduced likelihood of very wide “corrective” swings in monetary policy, and less attendant economic volatility. Moreover, these changes appear to be structural in nature, and, as such, their beneficial effects should prove lasting.

**A valuation framework: Our analysis of the drivers of commercial real estate supports today's rich valuations**

The Elements	The Drivers	The Measures	Impact on Valuation*
Real Estate Fundamentals	Short-Term Income Growth	Market Supply/Demand	Neutral
	Long-Term Income Growth	Inflation Outlook	Lower
Capital Markets Forces	Risk-Free Rate	10-Year Treasury Yield	Higher
	Funding Costs	Mortgage Spreads	Higher
Secular Change in Risk	Diversification and Liquidity	Growth of Securitization	Higher
	Cash-Flow Stability	Business Cycle Volatility	Higher

\*Relative to historical average

Source: AllianceBernstein

**Conclusion: Stay Strategic**

In our view, secular changes appear to be altering the fundamental risk associated with real estate, and therefore lowering the returns investors will require from it (*Display 14*). But it's only in hindsight that one can safely determine whether something is a permanent feature or a cyclical shift. While our analysis is long term in nature, it does highlight some short-term factors to watch for: Rising interest rates, a widening of mortgage spreads, or a drop in liquidity due to tightening credit markets or a shift in the flow of equity capital could all move against the asset class, separately or simultaneously. This could hurt those overexposed to commercial real estate, some of whom could suffer significant loss of equity. But these risks, of course, are not unique to commercial real estate.

With commercial real estate fully but perhaps not excessively valued, we think the asset class still warrants a long-term allocation. The key issue then becomes how to assess the level and sort of risks real estate portfolios present and the implications for investors' overall asset allocation. We will look at both of these questions in the next two chapters. ■

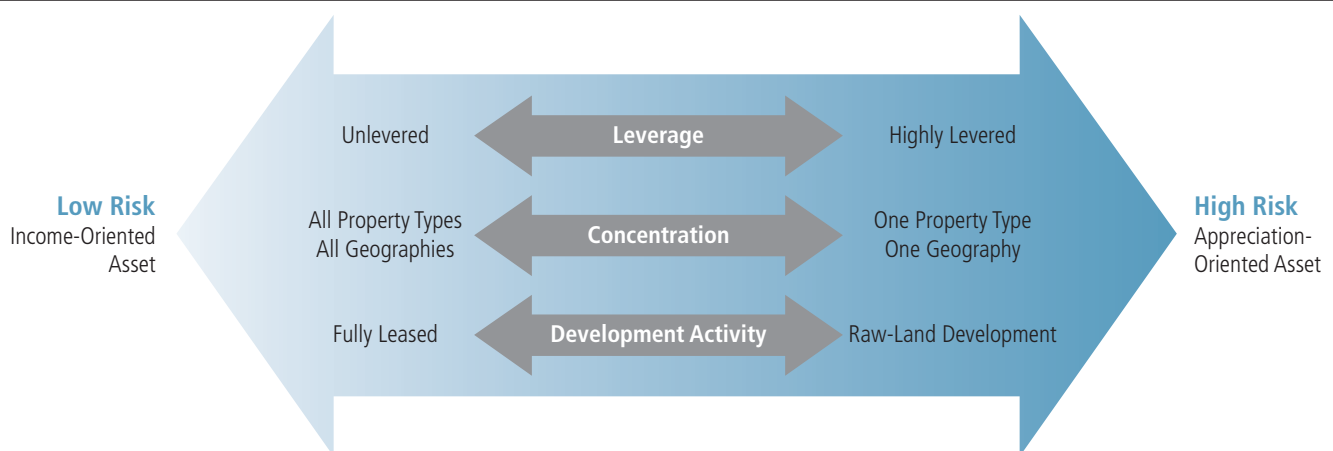
## FROM ASSET CLASS TO INDIVIDUAL PORTFOLIO: ASSESSING THE RISK AND RETURN PROFILE

Defining the pattern and sources of return for commercial real estate as a distinct asset class is important, but investors typically hold portfolios of properties that differ markedly from the broad asset class.<sup>8</sup> Real estate investors often employ significant amounts of leverage, may concentrate their holdings in a few properties or locales, or take on higher-risk development projects. These activities, alone or together, can transform a low-risk, income-oriented portfolio into a high-risk, appreciation-oriented holding, with important implications for asset allocation. Hence, *generalizing about real estate as an asset class may be woefully inadequate when advising clients about their specific holdings or overall financial plans.*

So we've devised a framework for assessing leverage, concentration, and development activity to help investors see how these factors can alter a portfolio's risk/return characteristics (*Display 15*). Our analysis applies to all real estate investments, whether they are held directly, via REITs, or through private investment funds. (*For more on the various real estate investment vehicles, see "Exploring the Investment Landscape" on page 34.*)

Display 15

**Portfolio diagnostics: Adjusting the degree of leverage, concentration, and development activity can alter a portfolio's risk/return profile**



Source: AllianceBernstein

<sup>8</sup> Market indexes tend to have characteristics that ensure some predictability around future returns, such as broad diversification, high occupancy rates, or above-average asset quality. In our analysis, we focus on a nationally diversified array of fully leased properties within the four core sectors: warehouse, office, apartment, and retail.

### The Alchemy of Leverage: Turning Steady Income into Growth Opportunity

For many, leverage is the sine qua non of property ownership. In direct commercial real estate investing, leverage offers a number of unique advantages:<sup>9</sup>

- **Enhanced return potential:** As long as the returns on the property exceed the cost of the loans, investors are able to juice up their returns. As we saw in the second chapter, real estate equity should always be priced to offer extra return—a risk premium—over and above the cost of mortgage financing.
- **Ease of diversification:** Buying a diversified portfolio of commercial properties requires a lot of capital. By gaining access to borrowed funds, investors can acquire a collection of properties without consuming the whole of their net worth.
- **Source of long-term financing:** With many other asset classes, leverage is tricky since investors face margin calls—and thereby forced sales—if their holdings drop quickly in the face of short-term market stress. Commercial mortgages tend to be longer term in nature, giving the real estate investor the ability to ignore near-term volatility.

<sup>9</sup> REITs also employ leverage—and for the same reasons as direct investors—but the amount is a given and not within the control of the individual investor.

- **Source of nonrecourse financing:** Commercial mortgages are almost always “nonrecourse,” which means that in the event of a default, the lender has no claim on the investor’s assets other than the specific property on which the loan was made.
- **Tax-saving opportunities:** Since interest payments on mortgages are tax deductible, they can be used to shield income for tax purposes. In addition, commercial real estate owners can extract appreciation tax free by periodically refinancing their mortgages.

While these features are clearly beneficial, leverage does come with significant risks. For one, leverage can dramatically shift the profile of the asset from one with relatively certain short-term cash flows to one reliant on more distant, and more uncertain, returns—essentially reducing its bond-like character and emphasizing its stock-like quality. This opens the door to cash-flow risk, where the expense of maintaining a property (including mortgage payments, taxes, maintenance, and other costs) could exceed the property’s rental income for some time.

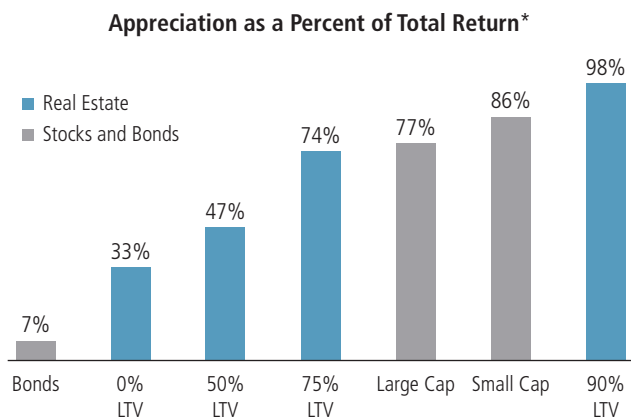
Here’s how: Say you buy a well-occupied property with leases in place for the next five years. Assuming these are high-quality tenants, you’ve got an asset that acts like a bond. But you decide to finance much of the purchase price with a 10-year mortgage. The recurring payments on the mort-

gage will offset much of your lease income. You’ll earn a modest positive spread (assuming occupancies remain level). But the big payoff potential, or downside risk, lies in the future when your leases roll over. If rents rise, you’ll have substantial growth potential, since all the additional cash flow will accrue to the equity holder and enhance the value of the property. On the other hand, if rents don’t rise or occupancy falls, you’ll bear the full brunt of the lost income. How long you could withstand the erosion of cash flow would depend on the amount of liquid reserves available to cover the loss. But if prolonged, this could lead to the most acute risk of all in real estate—a forced sale.

Here’s a real-life example of how leverage increases the volatility of real estate cash flows. First, remember that the broad real estate asset class has generated about two-thirds of its return from income and the remainder from appreciation over time. By taking out a mortgage for half the property’s value—that is, a loan-to-value (LTV) ratio of 50%—the income/appreciation mix shifts to about 50/50 (*Display 16*). At a 75% LTV, you’ve got about three-fourths of the return now coming from appreciation. That’s on par with large-capitalization stocks and makes for a much more volatile return stream.

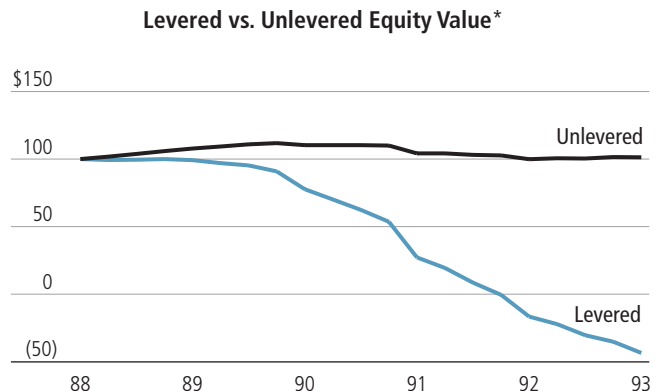
Now let’s look at the actual impact of this kind of leverage on wealth accumulation. In *Display 17*, we’ve analyzed the growth of \$100 invested in the

Display 16  
Leverage can generate volatility on par with equities...



\*10-year projections; AllianceBernstein estimates  
Source: AllianceBernstein

Display 17  
...amplifying the degree of potential underperformance



\*National five-year \$300 fixed-rate mortgage  
Source: AllianceBernstein

broad real estate market over the five-year period ending in 1993. During this period, you had a tough market, including a recession in 1990, so total returns for the unlevered investor were weak through the end of 1993, but positive: Falling prices were offset by the high income the properties threw off. A levered investor would have had a much tougher ride: In less than four years his equity had vanished, since he was more fully exposed to the price changes with little income offset. Now imagine if the levered investor started with a five-year mortgage that came due in 1993. Tight credit markets would have made rolling over the entire mortgage balance difficult. With negative equity and insufficient external liquidity, the investor could be forced into default or possible renegotiation with his lenders, and if forced to sell could realize a negative 100% return on the investment.

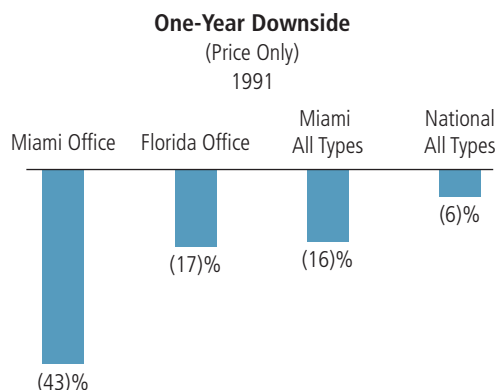
**Concentration Conundrum:  
Converting a Property into the Market**

The portfolios of most real estate investors tend not to be national in character but, rather, are concentrated by geography and type. This holds two implications. First, a concentrated portfolio, by its nature, is more exposed to event risk—say, the bankruptcy of a major tenant or the collapse of a local industry. Second, the more concentrated the mix of properties, the further the portfolio’s return and risk profile moves from one that can be characterized by the general asset class toward one that is far more idiosyncratic—driven by the investor’s skill at selecting and managing properties. In the short term, overconcentration increases the likelihood of a forced sale; the longer-term hazard, persistent subpar returns, is a less acute scenario, but the consequences for wealth accumulation are about as dire.

Diversification at its most basic means owning more buildings in more markets. The more buildings, the more tenants; and the more tenants, the less dependent an investor becomes on any one lease or leaseholder. Furthermore, just as stock investors can diversify by style, geography, and industry, real estate investors can diversify by property type and geography. Own more property types and you’ll vary the

Display 18

**Miami’s vice: Overconcentrating by property type or geography magnifies portfolio risk**



Source: NREI and AllianceBernstein

terms and durations of the leases (shortest for hotels and longest for offices) as well as your exposure to sector-specific supply and demand fundamentals. By investing across geographies, you’ll mitigate the impact of local economic conditions and unique space-market cycles where one or two industries may be responsible for an outsize percentage of overall tenant rolls. In short, diversification reduces the odds that the properties in your portfolio will suffer from a synchronized collapse in occupancies, rents, and valuations or from a uniform trickle of relative underperformance.

Take Miami, where commercial office property values fell 43% in 1991 (*Display 18*). The failure of two Miami-based banks and two Miami-focused airlines contributed to a 5% drop in nonfarm employment. The ripple effect of these layoffs hit an overbuilt office market, pushing overall vacancies up to 25% and asking rents down nearly 12%.

Diversifying the portfolio beyond offices and the Miami area would have muted the negative impact significantly. Investors evenly exposed to other Miami property types or even to other Florida office markets weathered the storm much better than did a concentrated Miami office investor. An equally weighted portfolio of Miami-only office, apartment, industrial, and retail properties lost around 16%, while a more geographically diverse office-only portfolio of Miami, Fort Lauderdale,

## A CLOSER LOOK: Residential Returns—Is a House Ever More than a Home?

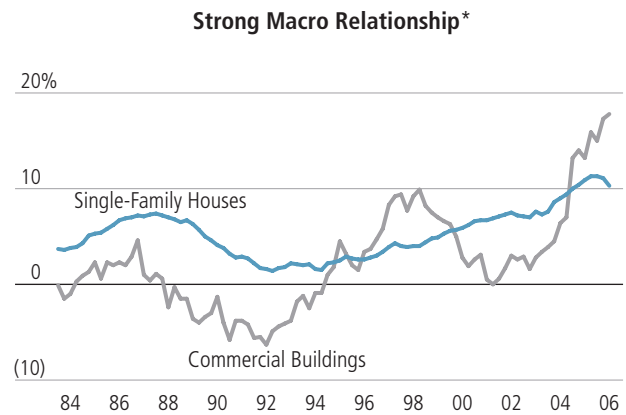
### Single-Family Housing and Commercial Real Estate

For most people, the largest asset they own is their home. So a frequent and valid question posed by investors is, Should I consider my house as part of my real estate allocation? *The answer is almost always no.*

While a family's current home shows up on the asset side of the balance sheet, their future home shows up on the liability side. In other words, one has to live somewhere, so only the difference in value between one's current and future homes truly counts as a homeowner's equity. And given that most people do not significantly "downsize" their lifestyles, the value of this equity is limited. But what about those who own multiple houses or who truly are going to downsize homes?

The *display, top*, shows that, in aggregate, commercial real estate and single-family housing bear a fairly strong relationship. Appreciation of both is tied to changes in land values, construction costs, and interest rates. But multi-year periods of divergence can and do occur due to different financing environments and varying supply and demand cycles. In the early 1990s, for example, both types of real estate suffered from a weak economy, but commercial valuations suffered more due to years of overbuilding and a lending market nearly shut to commercial mortgages. More recently, returns for single-family homes have fallen due to oversupply, while commercial real estate has continued to rise as construction has been more constrained there.

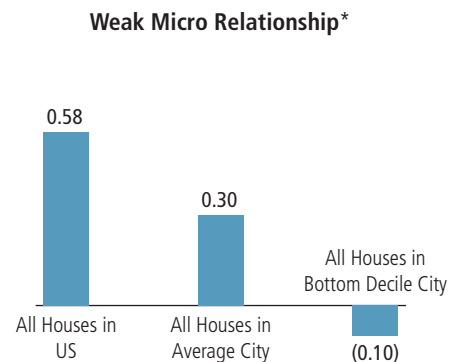
Returns on residential and commercial real estate show similar long-term paths, but striking short-term differences...



\*Three-year rolling price returns; annualized

Source: MIT CRE and Office of Federal Housing Enterprise Oversight (OFHEO)

...which increase as we move from the universe of all houses to the individual home



\*Correlation between single-family houses and commercial real estate, 1984–2006; rolling four-quarter returns

Source: MIT CRE and OFHEO

At a macro level, then, the universe of single-family homes bears some relationship to commercial real estate. But homeowners do not own the universe of single-family houses; instead, they own one, or at most a handful of homes. And just as owning a concentrated portfolio of buildings does not offer the risk or correlation characteristics of the broad commercial real estate asset class, owning a couple of houses does not provide the risk or correlation characteristics of the single-family housing universe.

If we break down the national universe of single-family housing data and rank each of the individual cities by their correlation to commercial real estate, some interesting relationships, or lack thereof, emerge (*display, bottom*). For example, while a portfolio of all houses in the country has a correlation of 0.58 to commercial real estate, the average city has a much lower correlation of only 0.30, and for some 10% of the cities in our ranking the correlation was even lower, at negative 0.10.

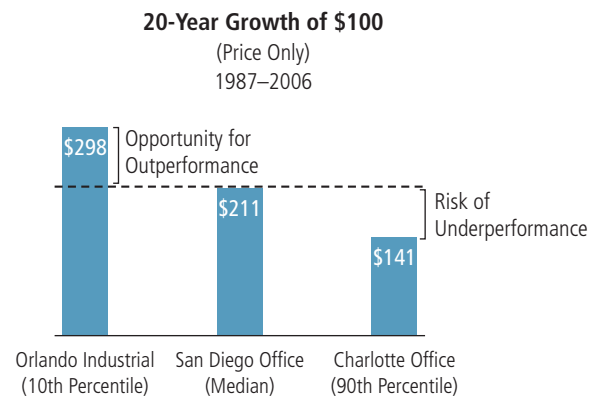
Given that the drivers of any single house in a single city are more specific still, we can assume that the correlation between the average house and the commercial real estate asset class is completely insignificant. As a result, the presence or absence of non-investment housing assets should have no more impact on the commercial real estate allocation decision than it does on one's stock or bond allocation decision. ■

Jacksonville, Orlando, and Tampa properties lost around 17%. Finally, a more national portfolio diversified across property types lost only 6%.

But instead of maximizing diversification, what if the goal is to capitalize on specialized skill or knowledge? As with leverage, so with concentration: It offers unique opportunities and risks. In the right city and the right sector—Orlando warehouses during the last 20 years, for example—overconcentrating was a boon (*Display 19*). In the wrong city and type—in this case, offices in Charlotte, North Carolina—it can be a long and unrewarding journey, one likely to require significant outside liquidity to be sustained.

Display 19

**Going beyond or below the benchmark:  
Concentration provides both opportunity and risk**



Source: NREI and AllianceBernstein

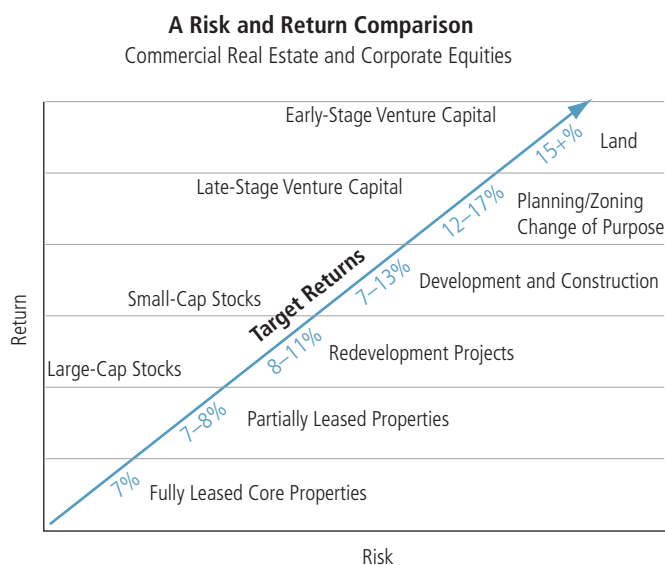
Either way, concentration will increase the dispersion of possible outcomes, rendering a portfolio's long-term behavior out of sync with the general real estate market—and all other markets for that matter. The return behavior of such a single-city, type-specific portfolio hinges almost exclusively on the skill of the investor and the fortunes of the market she invests in.

### Development Activity: Adding Value and Volatility

If concentration can shift a portfolio's risk/return profile toward the edge of the broad real estate market's map, moving down the stage-of-development hierarchy can push it off the margins altogether. The commercial real estate market is composed of structures at various stages of development, from brand-new, fully leased buildings to older, largely vacant redevelopment projects to raw undeveloped land (*Display 20*). A parallel gamut in corporate equities would run from the security of large-capitalization stocks through riskier small caps and on to the Wild West of early-stage venture-capital investing.

Display 20

#### Development activity means greater risk



Source: Ronald W. Kaiser, Myer and Byrne (2004), and AllianceBernstein

Display 21

#### A Framework for Assessing Real Estate Portfolio Risk

	Attributes	Risks
<b>Leverage</b>	<ul style="list-style-type: none"> <li>Increases expected return</li> <li>Eases diversification</li> <li>Improves tax efficiency</li> </ul>	<ul style="list-style-type: none"> <li>Introduces cash-flow risk</li> <li>Heightens swings in equity value</li> <li>Introduces refinancing risk</li> </ul>
<b>Concentration</b>	<ul style="list-style-type: none"> <li>Widens range of potential returns</li> <li>Heightens importance of skill at selecting and managing properties</li> </ul>	<ul style="list-style-type: none"> <li>Introduces event risk</li> <li>Raises cash-flow and, possibly, refinancing risk</li> <li>Returns decoupled from asset class</li> </ul>
<b>Development Activity</b>	<ul style="list-style-type: none"> <li>Requires large up-front cash flows</li> <li>Higher expected return and risk than asset class</li> </ul>	<ul style="list-style-type: none"> <li>Returns less certain and more distant</li> <li>Raises cash-flow and, possibly, refinancing risk</li> <li>Returns decoupled from asset class</li> </ul>

Source: AllianceBernstein

Development projects are inherently riskier than income-producing properties because they require large up-front cash outflows repaid with uncertain future cash inflows. However, this added risk comes with the potential for added entrepreneurial return. As a result, development businesses behave like a stock at the aggressive end of the equity spectrum.

### Real Estate Risk and the Allocation Implications

In sum, dialing any or all of the three factors up or down—toward or away from an index's proxy of fully diversified, unlevered, fully leased properties—will substantially alter a portfolio's risk and return profile. An investor simply needs to decide what risks to take: Leverage can enhance returns, ease diversification, and improve tax efficiency; concentrating in a specific market or property type can, with skill and luck, afford massive outperformance of the generic real estate asset class; venturing out into development opportunities creates the potential, over the long term, for venture capital-like returns.

But these risks can also prove catastrophic to long-term wealth accumulation and preservation. Increasing the portfolio's exposure to any or all of these dimensions can transform what is by nature an income-generating asset into something resembling a growth stock with no dividend, with serious consequences for the dispersion, uncertainty, and timing of returns (*Display 21*). It's therefore critical to factor in an investor's real estate investments when allocating his liquid assets, an issue we will address in the next section. ■

## CONSTRUCTING AN ALLOCATION FRAMEWORK

### Allocation, Allocation, Allocation: Public vs. Private

So far we have looked at commercial real estate as a distinct asset class and as a collection of properties. In this section we consider commercial real estate in the context of overall asset allocation.

Although the allocation issues that arise are as varied as investors themselves, the important concepts can be illustrated by two typical yet distinct situations. The first involves Carrie and Bill Shares, individual investors who are contemplating an allocation to publicly traded real estate securities. The second involves the Stone family, who have a majority of their wealth tied up in a directly owned and self-managed portfolio of commercial properties.<sup>10</sup> The issues faced by the Shares and the Stones boil down to the following questions:

- **The Shares:** How much should we allocate to real estate securities, and where should we locate this allocation—in a taxable or tax-deferred account?
- **The Stones:** How much should we hold in liquid assets, and how should we allocate this liquidity given the specifics of our family’s direct real estate holdings?

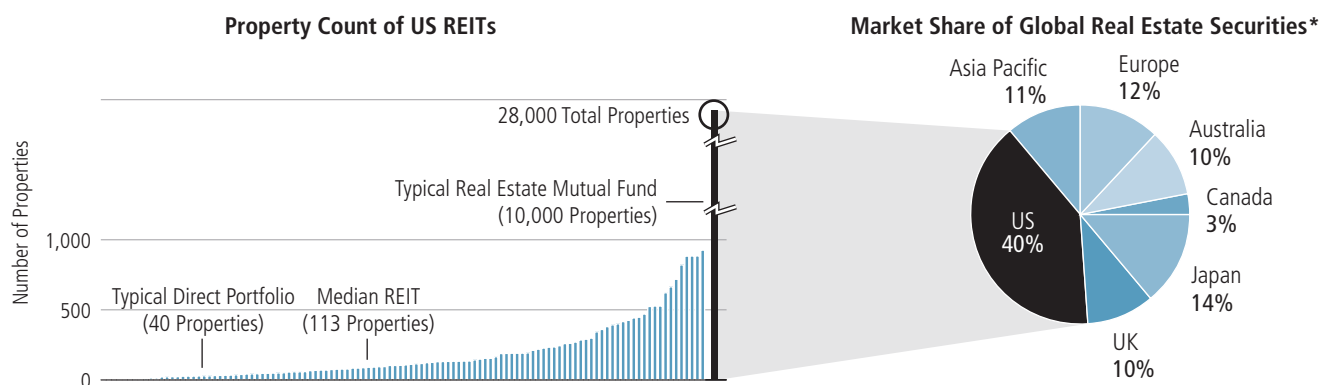
### GOING PUBLIC: THE MALL IN YOUR PORTFOLIO

The Shares are right to be focusing on an allocation to REITs. Building and managing a portfolio of commercial properties directly requires expertise, capital, and time, which the Shares, like most individual investors, don’t have. Perhaps the biggest mistake the Shares could make would be to invest a significant portion of their wealth in individual direct real estate opportunities. Excessive concentration risk is the only guaranteed outcome of such an investment approach.

REITs, on the other hand, allow investors to diversify, and with little investment know-how. Most individual REITs hold a larger portfolio of properties (113) than the typical direct investor. Meanwhile, the average REIT mutual fund holds dozens of securities that, in combination, give investors access to roughly 10,000 individual properties. And owning the entire universe of US REITs would provide instant exposure to some 28,000 buildings (*Display 22, left*).

Display 22

### US REITs provide broad access...but global real estate securities expand opportunity and diversification



\* As of March 31, 2007; includes REITs and real estate operating companies (REOCs)  
Source: EDGAR, FTSE Group, and SNL Financial

<sup>10</sup> Private real estate ownership is a big tent: It includes individuals and institutions that make their own real estate investment decisions, as well as those who take a more passive approach, outsourcing the decision making to an investment advisor or to one of a burgeoning number of real estate limited partnerships (RELPs). Their recent proliferation reflects investor zeal across the globe to participate in the surging commercial property markets. The tally of RELPs stood at 385 at the start of 2007, up from 116 in 2002, with plans to invest over \$230 billion of equity in properties across the real estate spectrum. However, more typically with private direct investment in real estate, the holder is simultaneously a property entrepreneur and investor, maintaining outright ownership and deploying much of his total net worth in the management of a portfolio of real estate investments. For more on the vehicles available for investing in commercial real estate, see “Exploring the Investment Landscape” on page 34.

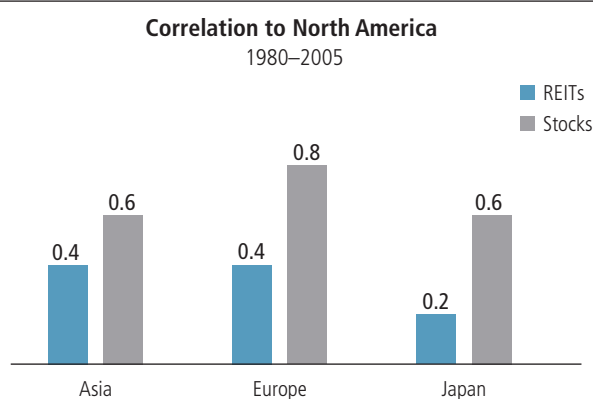
But even then, with full exposure to the entire universe of US REITs, the Shares would be missing out on much of the asset class's potential. Why? Because the US REIT market represents only 40% of public real estate securities globally (*Display 22, right, preceding page*). Investing in publicly traded real estate securities outside the US would more than double the market size and number of investment opportunities for the Shares.

### Going Global: Dialing Up Development and Diversification

Global real estate securities offer many attractions. In addition to providing exposure to more properties and property types, many global real estate securities focus on development activity, in the form of real estate operating companies (or REOCs).<sup>11</sup> In fact, more than a third of the global real estate index is made up of REOCs. The structural and legal differences between REITs and REOCs have important investment implications. It's true that REOCs have a higher risk and return profile than REITs, but they represent such a different part of the industry's value chain that they're a great complement to a REIT portfolio.

Display 23

**Double the diversification? Global real estate securities have lower correlations to US REITs than global equities have to US stocks**



REITs are represented by the FTSE EPRA/NAREIT Global Real Estate Index, and stocks by the respective Morgan Stanley Capital International (MSCI) country indexes.

Source: FTSE Group and MSCI

<sup>11</sup> In exchange for compliance with a set of rules, namely the requirement of generating 75% of income from rents and paying out 90% of that income to shareholders, REIT management obtains preferential tax treatment. Unlike equity dividends, which are taxed at both the corporate level and individual shareholder level, REITs are allowed to pass through income to the shareholder that is free from corporate tax—effectively removing the double layer of taxation that exists for most equities. REOCs, however, do not participate in any such tax breaks, as the REIT rules on cash flow are too restrictive for the capital-intensive development business.

The argument for global diversification is even more compelling when you consider the nature of property. It's essentially far more local than, say, corporate equities. As a result, diversifying internationally in real estate is even more beneficial than diversifying an equity portfolio globally (*Display 23*). For example, the correlation between US and European real estate securities is about *half* that of the correlation between US and European stocks. The same is true for US and Japanese REITs and equities. In other words, the Shares would gain more diversification benefit by globalizing their REIT portfolio than by globalizing their equity portfolio.

### The Role of Global Real Estate Securities in the Portfolio

So how much do the Shares allocate to global real estate securities? Their primary objective in allocating to real estate securities is to improve the expected return per unit of volatility in their portfolio. Real estate offers several attractive characteristics that can help them achieve this. We've already mentioned that real estate reacts to its own unique supply and demand cycles. As a result, it tends not to move in lockstep with other financial assets. That is, global real estate securities have a low correlation to both stocks and bonds, which makes them an attractive diversifier within an overall portfolio. Taking this into consideration, and inputting and stress testing our estimates for returns, volatility, and correlations, we recommend the Shares allocate about 10% of their liquid wealth to public real estate securities. However, investors who are extremely risk averse or risk tolerant would want less, and would tilt their allocation to nearly all bonds or all stocks, respectively.

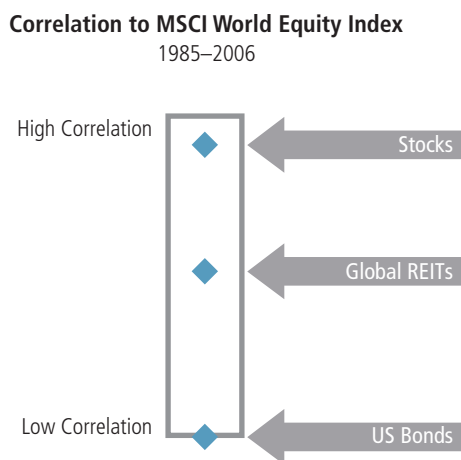
Why only 10%? In determining this—and any—optimal allocation, we look for the highest possible return obtainable from any mix of assets given a set tolerance for risk. Generating higher returns at the same or lower risk is the key to this analysis. Combining diverse or complementary assets, one that zigs while the other zags, is the best way to accomplish that, as it lowers the portfolio's overall risk. Real estate, therefore, can play an interesting role in the alchemy of portfolio diversification: It's

a hybrid with some of its return driven by bond-related factors (income) and some by stock-related factors (growth), and low correlations to both. But as *Display 24* shows, equities and bonds represent the fundamental contrast, the yin and yang, of the financial markets, as their returns often move in independent and sometimes opposite cycles, particularly in down markets. For this reason, stocks and bonds will tend to predominate in just about any optimization exercise.

The next question for the Shares is how to find room in their portfolio for a 10% real estate allocation. Our recommendation is that the Shares source the allocation roughly equally from their stocks and bonds. The attractive income/appreciation split of real estate's return profile offers an intuitive justification for this 50/50 sourcing recommendation. But the real story is slightly more complex. The fact is that *securitized* real estate tends to be more highly correlated to stocks than to bonds and, due to leverage (which on average is around 50%), REITs also exhibit volatility closer to stocks than to bonds. So if we see securitized real estate as more stock-like, shouldn't we source the majority of the real estate allocation from the client's existing stock exposure?

Display 24

**Opposites attract: Bonds and stocks are polar extremes, but global REITs are unrelated to both**



*Stocks are represented by the S&P 500, REITs by the FTSE EPRA/NAREIT Global Real Estate Index, and bonds by the Lehman Brothers US Aggregate Index. Source: FactSet, FTSE Group, Lehman Brothers, and Standard & Poor's*

Not in this case. When the Shares add this third asset into the traditional stock-bond mix, it acts as a diversifier for the portfolio as a whole, reducing its overall risk. The increased diversification from adding real estate to the portfolio allows the Shares to take on additional risk elsewhere and with it the opportunity for additional return. By splitting the real estate allocation equally between stocks and bonds (not taking it all from stocks), the Shares are able to retain higher exposure to stocks, which offer greater juice for potential returns, without increasing the overall risk in their holdings.

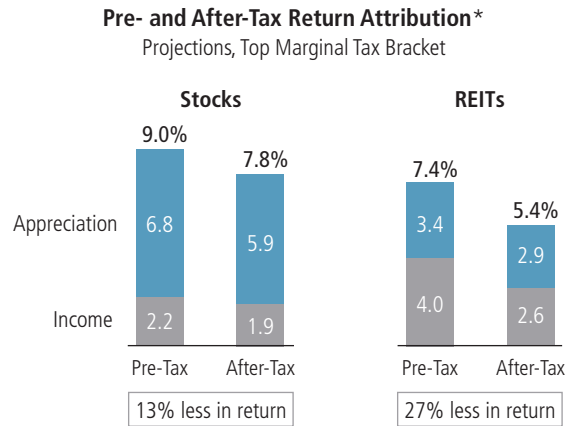
### From Asset Allocation to Asset Location: A Taxing Decision

However, there is an implicit assumption embedded in the above 10% allocation advice: Either the Shares are in an extremely low tax bracket or they have more than enough capacity in their IRAs, 401(k)s, and other tax-advantaged accounts to house the 10% real estate allocation. If neither of these assumptions holds, then we would recommend that they allocate less than 10% to real estate securities, or perhaps nothing at all.

REIT legislation mandates that 90% of income pass through to shareholders. REITs therefore generate a majority of their return through income and only a small proportion through appreciation. This income gets distributed as dividends that are taxed at ordinary income rates, unlike stock dividends, which are taxed at 15%. As a result, the after-tax return for REITs as a percentage of pre-tax return is about half what it is for stocks, with taxes consuming almost 27% of expected REIT returns and only 13% of corporate equity returns (*Display 25, following page*). In most cases, the diversification benefit from REITs does not overcome the heightened tax hit. In fact, our research indicates that REITs are so tax inefficient that they should not be held in taxable accounts—especially by investors in the highest tax brackets.

At this point the Shares are nearly done with the exercise. But there's one last concern. In cases where a 10% allocation to REITs would constitute substantially all of the Shares' tax-deferred assets,

## Location, location, location: REITs are reasonable only in tax-advantaged accounts



\* Geometric returns

Totals may not equal sums of components due to rounding.

Assumes 15% turnover, which implies an average holding period of 6.7 years. Based on Bernstein's *Capital Markets Engine*; see *Notes on Wealth Forecasting System*, pages 38–40.

Source: AllianceBernstein

we need to be careful. Remember, REITs are particularly attractive because of their low correlation with equities and bonds and the opportunity they provide to reduce overall portfolio risk. However, in order to fully harness that diversification benefit, we would need to periodically rebalance the portfolio across a range of assets, essentially buying low and selling high, when each deviates from its target allocation. Overemphasizing REITs in the Shares' IRA, for example, which is a separate account and portfolio, would preclude their ability to rebalance and thus reduce the diversification potential that REITs could otherwise provide.

Therefore, we recommend the Shares cap their REIT exposure in any single tax-deferred account at 50%, allowing for a 50% allocation to other assets that the REITs can rebalance into or out of, enabling the Shares to benefit from both their low correlations and the market's inevitable volatility. This, of course, requires ongoing attention, so the Shares would want to regularly assess their real estate allocation as well as real estate's role in their overall portfolio with their financial advisor.

## PRIVATE PROPERTY: A NEW DEFINITION OF RISK

There are a number of differences between investing in securitized real estate and investing directly in individual properties, but perhaps the most fundamental is the notion of risk and how it is experienced.<sup>12</sup> For equity investors, risk is experienced as mark-to-market volatility—you can see what your portfolio is worth in the newspaper every day or on the Internet in real time. Behavioral research makes it clear that investors find the uncertainty of constant price movements to be highly distasteful; they have to be induced to live with it through higher expected returns. Investors in private real estate, however, respond to different signals. Because it is an illiquid asset, there is no reliable short-run pricing information, so measurement horizons are much longer than they are for stocks. Instead, investors are more likely to look through to the underlying cash flows of the assets they are buying, which bear little if any relationship to the daily volatility of stock prices.

The greatest risk that direct real estate investors face is the possibility of a forced sale. If an investor is forced to sell a building at a time when the market is in stress, the results could prove catastrophic—easily wiping out the entire equity of a levered investment. And despite the seeming day-to-day stability of the asset class, severe price declines do occur. In the early 1990s, for example, office property values fell 35% in New York City, 45% in Chicago, and over 50% in San Francisco. Moreover, these numbers reflect the experience of entire cities; some individual assets within the cities fell by far more. So what could possibly force

<sup>12</sup> Other points of differentiation between direct and securitized real estate investment include the handling of taxes, as well as leverage. Direct taxable investors utilize a number of tools to improve the tax efficiency of their investments. For example, they tend to take on high debt levels (typically around 70% loan-to-value) in part to maximize the tax savings from tax-deductible mortgage payments. These investors can also control capital gains taxes by refusing to sell assets with large embedded gains. Investors in public securities do not receive the same level of tax efficiency. Increasing leverage may increase tax efficiency, but it also increases volatility—and volatility is anathema to public security markets. As a result, REITs tend to keep their debt levels much lower than most direct portfolios (40–50% LTV versus 70%) and so receive less benefit from the tax deductibility of mortgage payments. Also, because REIT managers generally are not compensated on after-tax performance, they are more likely to realize capital gains on low-basis, highly appreciated assets and less likely to invest in other tax-saving strategies. For example, if properly documented, different components of a building can be depreciated over different time periods, allowing quicker average depreciation, so fewer taxes in the near term. The time, money, and hassle required are simply not worth it for tax-insensitive investors.

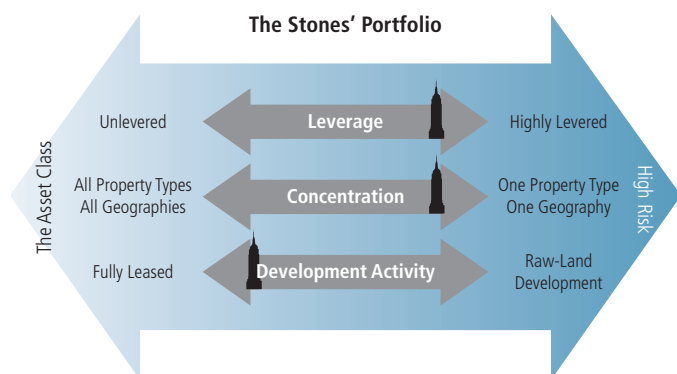
an investor to sell in this or any environment? The three most likely causes of a forced sale are prolonged negative cash flows, an inability to roll over mortgages, and a need to fund estate taxes. In developing our framework for sizing and allocating the direct investor’s liquid assets, we will look in turn at scenarios that involve each of these.

Keeping in mind the unique risks that real estate investors face, let’s turn to the Stones, a family that directly owns and manages a portfolio of income-producing properties. Possessing deep expertise in the local office market, the family has concentrated the portfolio there, holding a total of 10 buildings. The business uses a high degree of leverage to maximize the number of properties owned, minimize the income taxes paid, and seek a high return on equity.

Plotting these portfolio characteristics on our risk/return framework illustrates just how far the profile is from that of the generic commercial real estate asset class (*Display 26*). The picture suggests that the Stones do not likely own a stable, income-producing asset—rather, it is a volatile, idiosyncratic investment with uncertain long-term returns. What, then, are the implications for their liquid assets—what amount is advisable or appropriate to hold, and how should it be allocated?

Display 26

**The Stones’ portfolio is highly leveraged, highly concentrated, and therefore high risk**



Source: AllianceBernstein

### Bridging the Liquid and Illiquid Portfolios

The Stones can think of their liquid assets and their allocation as fulfilling a hierarchy of investment objectives. The highest and most immediate goal is to endow their core lifetime spending by funding a lifestyle reserve. The Stones need to make sure that they’ve got enough liquid capital to support their lifestyle even if the capital markets and their real estate portfolio were to experience very weak long-term returns. In addition, since real estate is a cyclical asset that’s vulnerable to short-term shocks in rental income (which could lead to cash-flow risk) and price declines (causing potential refinancing risk), they should also fund a real estate reserve that is sufficient to manage the portfolio through the inevitable market downturns.

Some families will find that they have liquid assets in excess of the amount required by the real estate and lifestyle reserves. We call that “excess” capital. This is money that the Stones could deploy in opportunistic investments (including hedge funds), discretionary spending, or for other goals, including charitable giving. Finally, some consideration should be given to the potential estate-tax burden that could encumber the Stones’ heirs. How much will be needed to fund the various reserves, and how those reserves should be allocated, will depend on the specific nature of the Stones’ real estate portfolio, their personal spending goals, their time horizon, and their overall tolerance for risk. The process we employ in analyzing and determining both the size and allocation of the liquid reserves is illustrated in *Display 27*.

Display 27

### Bridging the Liquid and Illiquid Portfolios

Liquid Assets	Role	Allocation Driver
Lifestyle Reserve	Supplement spending in case of poor long-term real estate returns	Investor Risk Tolerance
Real Estate Reserve	Avoid forced sales in poor market and financing environments	Duration of Real Estate Liabilities
Estate Tax Reserve	Ensure liquidity for estate tax liability	Time Horizon
Excess Capital	Satisfy goals for discretionary spending and wealth transfer	Personal Goals

Source: AllianceBernstein

### Getting a Lifestyle Reserve: The Long-Term View

The first priority is to set aside enough capital to endow the Stones' lifetime spending needs even through difficult markets. By definition, this is a long-term analysis, and we want to be conservative in our estimates. Income from the real estate portfolio may currently cover spending, but income growth could stagnate while spending continues to grow with inflation. In fact, the range of rental growth rates for downtown office markets over the past 20 years suggests that zero growth is not an unreasonable worst-case estimate for any single city going forward.

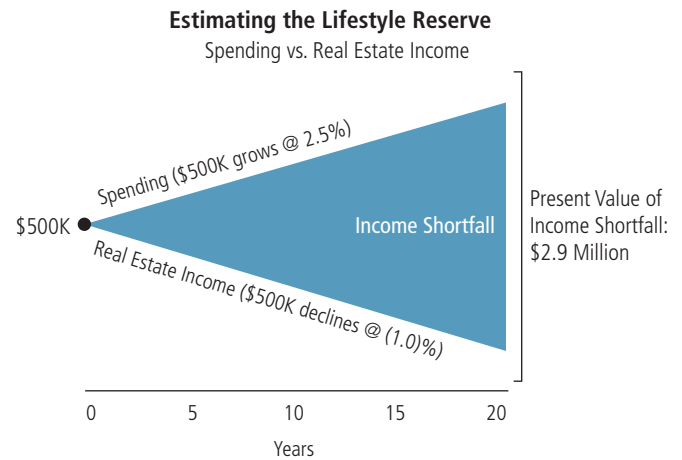
But remember, the Stones don't own a single city, only 10 properties within it, which is a far more uncertain proposition. Similarly, while the Stones can always sell buildings to sustain their lifestyle, this option may be unattractive from both a tax and legacy perspective. So to determine how large a liquid lifestyle reserve needs to be to guard against forced asset sales, we want to model inflation-like spending growth with the possibility of stagnant, or even declining, income growth from the property portfolio.

Let's look at the numbers. Say the Stones receive \$500,000 annually in after-tax income from their real estate portfolio, an amount that could vary depending on the strength of the market. For example, bottom-decile rent declines for offices in general over the past 20 years were around 10% cumulatively; specific office properties could be down twice that, or 20%. Therefore, we might model a "worst case" long-term decline in potential income growth of about 1% a year. Meanwhile, let's estimate that the Stones require approximately \$500,000 annually to cover their core spending needs, a figure that will grow in line with inflation of about 2.5% a year over a 20-year period (*Display 28*).

While we can never know exactly how the future will unfold, we use our proprietary Wealth Forecasting Analysis (WFA) tool to project a range of prospective market returns and inflation rates. We presume the Stones are relatively intolerant of risk and require near-certainty (to a 90th percentile of probability) of meeting their lifetime spending needs

Display 28

### Mind the gap: As spending rises and income declines, the potential lifestyle shortfall grows



Based on Bernstein's *Capital Markets Engine*; see *Notes on Wealth Forecasting System*, pages 38–40.

Source: AllianceBernstein

out of their combined real estate cash flows and liquid assets. So, given our estimates of the family's lifetime spending and long-term property income, the present value of funding needed for the lifestyle reserve would amount to approximately \$2.9 million.

Note that this analysis presumes a rather benign, straight-line deterioration of rental income of 1% a year over the 20-year period. But, in fact, real estate is by nature a cyclical asset, and short-term cash-flow shocks could arise with any portfolio, particularly one that is as concentrated as the Stones'. To address any sudden or precipitous shortfalls in rental income that the real estate portfolio might face, and which could impact their core spending needs, the Stones would need to turn to their real estate reserve.

### Building the Real Estate Reserve: Gauging the Short-Term Liabilities

The goal of the real estate reserve is to prevent the Stones from having to tap into assets they've set aside for their lifetime spending in order to sustain their properties in a down market. For example, weak space markets could lead to reduced cash inflows. Similarly, severe price declines and tight credit markets make rolling over a maturing mortgage difficult. The higher the leverage and the more concentrated the portfolio, the larger both of these problems become. Lack of outside liquidity suf-

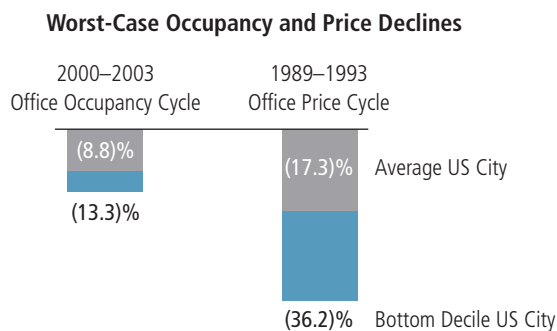
efficient to bridge either of these contingencies may necessitate a forced sale at a time when prices are most likely to be depressed. So how can we take measures to guard against these risks?

Each direct real estate investor’s portfolio—the mix of properties, tenants, locations, and leverage—is unique. To designate a specific amount or allocation for an investor’s real estate reserve would require a detailed property- and market-specific analysis, one that we would pursue together with the investor and his other advisors.<sup>13</sup> For the purposes of the present analysis, we simply want to illustrate the methodology one might use to stress test a commercial real estate portfolio and a framework that helps put the key issues in context.

First let’s look at cash-flow risk. The period of greatest potential risk to cash flows is the point of peak lease rollovers. An extreme drop in occupancy could cause a dramatic reduction in cash flows and, if prolonged, could require substantial liquid reserves in order to avoid backing out of the investment altogether. To establish conservative parameters for what the reserve should be, we model the potential impact of one of the worst occupancy markets in recent memory, from 2000 through 2003, on the Stones’ real estate cash flows (*Display 29*).

Display 29

**Stress testing the portfolio through worst-case cash-flow and refinancing scenarios helps size the real estate reserve**



Source: NREI and Reis, Inc.

<sup>13</sup> For example, an investor with a portfolio weighted toward office properties would likely experience higher risk than one with a portfolio dominated by apartments. Office buildings tend to take longer to build and have fewer tenants. The long construction lead-time makes the sector more prone to oversupply, and the lease concentration makes income more dependent on specific tenants. These risks are somewhat mitigated by longer office lease terms, so the focus shifts to the credit quality of the individual tenants. Apartments, on the other hand, take far less time to develop, and therefore suffer fewer supply and demand imbalances and tend to have a far greater number of tenants with shorter leases, so tenant credit quality is less of an issue.

It’s possible that even if occupancies were to fall and rents contract on par with the early-2000s nationwide cycle, a generic commercial real estate portfolio could remain cash-flow positive. However, the Stones do not own real estate nationwide; they own 10 buildings in a single city. Using the bottom-decile city during the early-2000s cycle as the proxy for a worst-case occupancy decline, we see on the left in *Display 29* that the Stones’ portfolio could experience an occupancy collapse of as much as 13%. Again, that’s for the city as a whole. Because they own only 10 properties, a 13% decline may reflect the best possible outcome of this worst-case analysis.

Then there’s the other key risk of having to refinance when prices are low. The most acute risk environment for the Stones in this case would be the period of peak mortgage rollovers. Let’s assume that if prices fall along with cash flows, they will not be able to refinance the entire maturing mortgage balance. In other words, even if the Stones can obtain the same underwriting terms, the available loan amount would shrink because both the value of the property and the income they derive from it have dropped.

Once again, to be conservative in estimating the reserve amount, we want to view the portfolio’s performance in a worst-case context: the 1989–1993 cycle. Using the bottom-decile city’s performance during the early-1990s cycle, we see that the Stones’ properties could suffer a price decline of as much as 36% (*Display 29, right*). And again, this figure represents the citywide fall; that of only 10 properties could potentially be much greater.

Furthermore, we’ve assumed in this model that the lending market was open and functioning—but, in fact, constrained credit availability often coincides with steep price declines. The point is, without a sufficient reserve to offset this possible price decline, the drop in value would make it much more difficult to meet the difference between maturing and new mortgage balances.

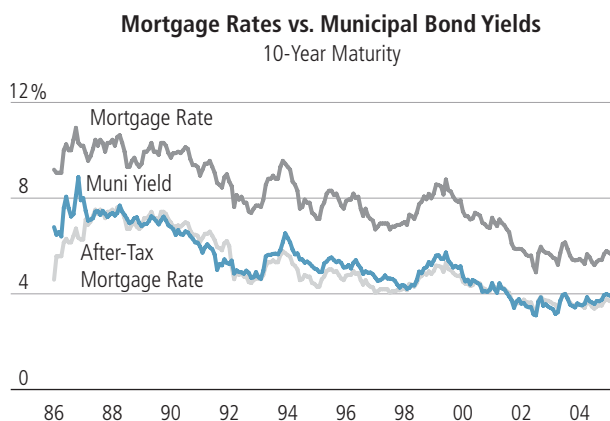
## From How Much to How: Constructing an Allocation Framework

So much for the size of the reserves; now let's turn to their allocation. The specific attributes of the real estate portfolio should influence the contours of the liquid allocation in two ways. The real estate portfolio's characteristics have already been instrumental in defining the appropriate size of the real estate and lifestyle reserves, each of which has its unique allocation parameters, as we'll see. In addition, those characteristics (leverage, concentration, and development activity) define where the real estate portfolio sits on the risk spectrum we illustrated earlier, thereby providing a sense of how the *overall* liquid portfolio may best be allocated to counterbalance the real estate-related risk the Stones face.

First the real estate reserve. Because this pool of capital could be needed on relatively short notice, it should be allocated entirely to diversified, high-quality bonds of equal duration to the mortgage portfolio. This would shield the reserve from the vicissitudes of the equity markets as well as from changes in interest rates. The point is, the bond allocation needs to be both liquid and safe, available to be deployed quickly for whatever portfolio-related need the Stones might face. It also must suit the family's tax situation. So in our example, a portion of the Stones' liquid wealth gets earmarked exclusively for tax-exempt municipal bonds to fund their real estate reserve.

Display 30

### Freedom in bonds: Allocating the real estate reserve to municipal bonds provides insurance and liquidity



Source: Barron's, Internal Revenue Service, and Lehman Brothers

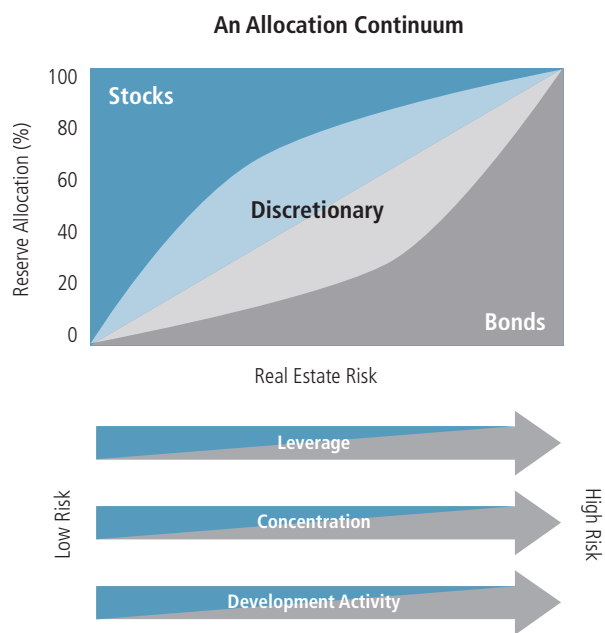
But such an allocation for the real estate reserve could set up a negative arbitrage—where the Stones' mortgage rates are higher than the yields they receive from their municipal bond portfolio. If that were to happen, the Stones might consider simply reducing the loan-to-value ratio on their properties. Here the key question is, How do mortgage rates stack up against munis? Mortgage interest is tax deductible, while municipal bond interest is tax exempt. So to compare apples to apples, you must either reduce the mortgage payments by the tax savings or increase the municipal yields to their “taxable equivalent.” Doing so reveals that the difference between the two is negligible (*Display 30*). By holding municipal bond assets and not de-levering, the Stones can more safely take advantage of the many benefits that debt offers a direct real estate investor.<sup>14</sup>

That leaves the second allocation decision, for the lifestyle reserve. These dollars should target equity investments up to the point that reaches the Stones' tolerance for mark-to-market volatility—specifically, their capacity to tolerate losses in down-market cycles. Direct real estate investors unused to looking at daily market valuations often struggle with stock volatility, so any allocation to equities may expose them to more financial market risk than they are willing to bear. Once again we would turn to our wealth forecasting tool to enable the Stone family to “pre-experience” both the expected volatility and returns of various equity allocations across different time horizons. But even with the benefit of such a forecast, the overall allocation decision cannot be made without considering the impact of their real estate portfolio.

The Stones' real estate reserve demands a bond allocation, as does their tolerance for liquid losses in the lifestyle reserve. Beyond these floors, we must look to the Stones' real estate portfolio for guidance in allocating the remainder, what we might call the discretionary portion, of their liquid assets. *Display 31* illustrates the decision process.

<sup>14</sup> Even if the after-tax spread were negative, leverage might make sense: Leverage increases the ability to diversify by increasing available capital, and the nonrecourse provision provides disaster insurance on any individual property (e.g., if an earthquake takes out your California properties, the lender cannot come after your New York properties to recoup the mortgage balance). Investors should be willing to pay (i.e., accept a negative yield spread) for these benefits.

### Direct real estate investors need to factor their real estate risk into the overall liquid portfolio



Source: AllianceBernstein

Investors with truly unlevered, diversified real estate portfolios own an income-oriented asset, so they should feel free to allocate their discretionary assets according to their liquid loss tolerance—with greater exposure to equities. More highly levered, concentrated, and development-focused real estate investors, on the other hand, already have a portfolio with return potential and risk more akin to stocks. Owners of such portfolios, the Stones included, may wish to overweight bonds even within the remaining discretionary portion of their liquid reserves.

This kind of bottom-up approach results in a significant bond allocation for concentrated, levered investors—a large real estate reserve consisting entirely of municipal bonds and a lifestyle reserve that tilts decidedly toward fixed income, largely due to the Stones' distaste for financial market volatility. A top-down analysis suggests the same. For example, the greatest macro risk a real estate investor could face is deflation. Inflation will drive long-term appreciation in rent growth and will shrink the real value of the mortgage payment.

Deflation is its mirror image: Income growth will turn negative while the real value of the mortgage debt will grow, a macroeconomic double whammy for the property investor. This provides one more argument for the importance of bonds in the liquid allocation—they would thrive in a deflationary environment—and another reason to avoid stocks.

Within the equity allocation, specific tilts to various geographies or investment styles could also reflect the nature of the real estate portfolio. The most obvious example of this approach would be to emphasize foreign assets, as the Stones' real estate portfolio is exclusively domestic. The Stones may also want to tilt their equity allocation away from value stocks in favor of growth. Not only are value stocks and real estate more reliant on income than growth stocks are, but both are driven by the credit cycle.

The next question for the Stones is what to do with any capital in excess of the real estate and lifestyle reserves, what we are calling their “excess capital.” By definition, this capital is not critical for future needs, whether to support the real estate portfolio or to sustain the Stones' lifestyle spending. In general, the higher an investor's net worth and the lower his spending needs relative to his net worth, the greater the share of his total wealth that can be deemed excess capital. This pool of assets could be plowed back into the business, deployed in opportunistic investments and hedge funds, or used as part of a comprehensive wealth planning strategy that addresses gifting and charitable goals along with other legacy issues.

As the wealth planning conversation extends beyond the here-and-now to the hereafter, another important consideration arises: Will there be sufficient liquid capital to pay estate taxes on an illiquid property portfolio? Suppose a real estate owner dies during a market bubble, which is followed soon thereafter by a contraction in valuations. What if the portfolio—and the owner's heirs—are also encumbered by significant mortgage debt? In such a scenario, the children could

*(continued, page 32)*

## Real Estate and the Estate: Wealth Transfer Strategies for Illiquid Assets

The federal government imposes estate tax on the “fair market value” of US real estate—even if the owner is not a US citizen or resident at the time of death. Similarly, states may impose estate or inheritance tax on real estate located within their borders. Furthermore, real estate outside the US may be subject to federal and state estate taxes if the owner was a US citizen or resident at the time of death.

In some states, the combined federal and state estate tax can amount to 53% (or more) of the property’s fair market value. Estate taxes are payable by the owner’s estate to the government in cash no later than nine months after the owner’s death. For an estate that consists primarily of illiquid interests like real estate, paying the tax can be difficult.

### The Liquidity Problem

A property’s fair market value is generally the amount a willing buyer would pay a willing seller, assuming that neither party is under compulsion to buy or sell and both are aware of all relevant facts. In most cases, fair market value is determined as of the owner’s death. The executor settling an estate that consists largely of real estate probably does not have enough time to liquidate properties to pay the estate taxes when they are due—unless the executor is willing to sell for less than fair market value. Such a “fire sale” might raise fiduciary issues for the executor.

When a threshold percentage of the real estate owned by the decedent is part of a closely held business, the executor may be able to defer payment of estate taxes attributable for that portion for up to 14 years under Section 6166 of the Internal Revenue Code. Otherwise, the executor must use the estate’s liquid assets (including life insurance proceeds, if any) or borrow from third parties to pay the taxes due within the limited time frame allowed by law.

### The Valuation Problem

Part of the problem with real estate is that its worth is inherently subjective: There are no market quotes available to establish value. When an owner dies, the executor is required to file a tax return listing each property and its appraised fair market value, which must meet the willing buyer–willing seller test. If the government disagrees with the estate’s appraiser, it can seek its own appraisals. Thus the valuation battle begins.

But the valuation problem can be more than a matter of differences of opinion. Consider timing. If a real estate owner dies in the midst of a real estate bubble, then the fair market value could be quite high—perhaps more than the executor can fetch in an arm’s length sale a year or two after her death. Assume she died owning a commercial property free of debt that had a fair market value of \$10 million, duly reported by the executor at that value on her estate tax return. If commercial real estate values falter and the executor sells the property for \$9 million, she may not be able to obtain an estate tax refund based upon the sale price. At best, the executor may be able to recognize a capital loss, for income tax purposes, of \$1 million—the difference between the sale price and the \$10 million “stepped-up” basis of the property.\*

### The Benefits of Lifetime Transfers

An owner can seek to avoid—or at least mitigate—estate tax issues by transferring property interests during his lifetime, structuring it as either a gift or a sale. A gift may be subject to federal gift tax, which can amount to as much as 45% of the value transferred. (Although many states impose an estate tax, the vast majority do not impose a gift tax on top of the federal gift tax.) Generally, a sale is potentially subject to

\* The income tax basis of property acquired from a decedent within the meaning of Internal Revenue Code (Code) Section 1014(b) generally will be stepped up—or down—to the fair market value of that property on the date of the decedent’s death. This rule does not apply to certain types of property, notably “income in respect of a decedent,” which includes qualified plan benefits, payments due under installment sale contracts, and the like. If the executor elects “alternate valuation” in accordance with Code Section 2032, the basis of assets acquired from the decedent will be adjusted to reflect the fair market value of the property on the date that is six months after the date of the decedent’s death, although property sold or otherwise disposed of after death but prior to the alternate valuation date will be valued as of the date of disposition. Alternate valuation is not available unless both the value of the gross estate and the amount of estate tax payable will be reduced by virtue of the election.

gift tax only if the seller receives consideration of less than the property's fair market value. (The Appendix tabulates several gift and sale structures.)

There are several reasons why lifetime transfers—whether by gift or by sale—of real estate may be preferable to transfers at death:

- First, an owner can significantly reduce the tax burden by transferring property when values are in a lull. Of course, lifetime transfers are subject to the willing buyer–willing seller test.
- Second, an owner may transfer less than his whole interest in a property, mitigating the valuation problem. For example, an individual who owns a warehouse with an appraised value of \$10 million could transfer an undivided 10% interest to his children or to an irrevocable trust set up for their benefit. Has the owner made a gift of \$1 million (10% of the \$10 million appraised value) for transfer-tax purposes? Well, a hypothetical willing buyer might not be willing to pay \$1 million for that interest. Any savvy buyer would recognize that she would own the property jointly with the seller—whose approval as co-tenant would be needed for a sale, mortgage, or other transaction. The buyer might, however, be willing to pay \$800,000 for that interest, depending upon the circumstances. Many court decisions support this type of fractional interest discount. In sum, the transfer of an undivided interest, whether by gift or by sale, could reduce an owner's estate by more than the value of the interest actually transferred.<sup>†</sup>

- Third, the gift tax can be cheaper to pay than the estate tax, even though the federal tax rate is the same for each. Gift tax is imposed only on the assets that the donee actually receives, whereas estate tax is imposed on all assets owned by the decedent at death. Assume that a real estate owner wants to transfer \$10 million of value to her children. She has used all of her otherwise available gift- and estate-tax exclusions, and the effective gift- and estate-tax rate at the time of the transfer is 45%. If she makes the transfer during her lifetime as a gift, the amount of gift tax owed will be \$4.5 million ( $\$10 \text{ million} \times 45\%$ , the gift-tax rate). The \$4.5 million of tax paid will leave her estate and will not be subject to estate tax upon her death—if she survives the date of the gift by at least three years.<sup>‡</sup> On the other hand, if she were to transfer that same \$10 million to her children at death, she would need nearly \$18.2 million of total assets in her estate. After paying an estate tax of \$8.2 million ( $\$18.2 \text{ million} \times 45\%$ , the estate-tax rate), she would have \$10 million left to transfer to her children. Lifetime giving is even more beneficial in those states with a state estate tax but no state gift tax. So what's the catch? Aside from the three-year survival requirement, current law provides that the federal estate tax (and consequently most states' estate taxes) will go away—but only for individuals who are “lucky” enough to die in 2010. Thus, if current law remains in effect, those individuals who paid gift tax during their lifetimes—in many cases for the express purpose of avoiding a potentially higher future estate tax—and then die in 2010 will have paid that lifetime tax unnecessarily.<sup>§</sup> ■

<sup>†</sup> In some cases, commercial real estate will be owned through an entity, rather than directly. In such cases, a transfer of an interest in the entity may warrant a discount for lack of marketability and, if the interest is a minority interest in the entity, for lack of control. The amount of these discounts should be determined by an experienced professional business appraiser, and could amount to 30% or more of the value of the interest transferred, depending upon the circumstances.

<sup>‡</sup> Code Section 2035(b) provides that a decedent's gross estate must be increased by the amount of any federal gift tax paid by the decedent or his estate on any gifts made by the decedent or his spouse within three years prior to the decedent's death.

<sup>§</sup> There may be a drawback for certain individuals who make taxable gifts even if they don't die in 2010. That drawback arises from the difference between the lifetime applicable exclusion amount—currently \$1 million—and the estate-tax applicable exclusion amount—currently \$2 million, but scheduled to increase to \$3.5 million in 2009. Let's modify our example in two respects: First, assume that our donor has made no prior taxable gifts; and second, assume that our donor wants to transfer property valued at \$2 million, rather than \$10 million, to her children. If she made a gift of that property today, the first \$1 million of value would not be subject to gift tax due to her lifetime applicable exclusion, but the next \$1 million of value would trigger a gift tax of \$450,000 (or 45% of \$1 million). On the other hand, if the decedent waited until death to transfer the property, the transfer would not be subject to estate tax, even if she died before 2010, due to the higher \$2 million estate tax applicable exclusion amount—but only if the property does not appreciate in value prior to the decedent's death. The current uncertainty about the future of the gift and estate taxes—not necessarily repeal, but the prospect of major changes in the applicable exclusion amounts or tax rates, or both—makes lifetime giving a complicated and risky game.

easily face a tax bill greater than the equity in the inherited buildings. A thorough wealth planning analysis therefore must address the possibility of a forced liquidation of assets due to the transfer of the estate, or a reserve fund to preclude it. (*For more on the general topic, see “Real Estate and the Estate” on page 30, and the Appendix on page 36, where we tabulate some of the basic strategies for transferring illiquid wealth.*)

Calculating the amount of such a reserve is relatively easy (it’s simply the tax on the current equity value of the portfolio). But the owner’s expected life span, and therefore the time horizon of the investment, could complicate matters. In fact, it has decisive implications for the reserve’s allocation—the prospect of greater longevity argues for a higher

proportion of stocks; a shorter horizon would mean more bonds. But as we saw with the real estate reserve, pegging a specific allocation remains a consultative, client-specific affair.

It should be clear by now that determining the various reserve amounts and their allocation requires complex analysis tailored to the unique circumstances and goals of each investor. Only through a holistic review of the real estate portfolio’s specific characteristics, an investor’s unique lifestyle and business goals, and a sober estimate of both the financial and real estate markets’ likely behavior can one determine a comprehensive plan that bridges the liquid and illiquid portfolios. ■

## ADDITIONAL INFORMATION

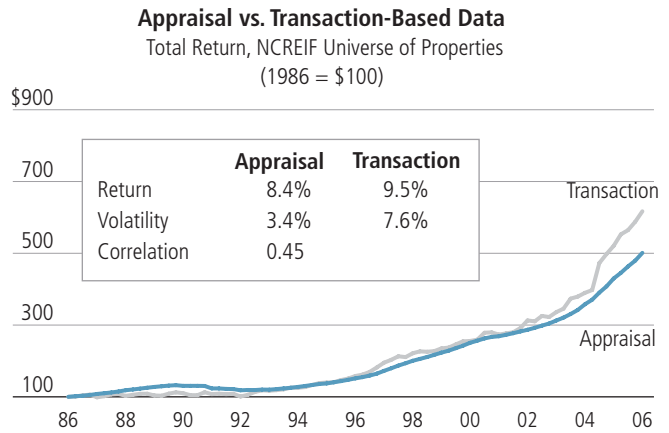
### THE DATA DILEMMA

On average, a share of an S&P 500 company's stock trades 181 times a second at a price instantaneously disclosed around the world. The typical piece of commercial property transacts once every six years on terms that may never become public. Infrequent transactions on inherently heterogeneous properties make constructing an accurate total return index nearly impossible for real estate—indeed, no truly representative, transaction-based long-term real estate index exists.

In our research, we assembled data from a host of different sources that, when combined, we felt would best describe the asset class (*display below*). For example, data on capitalization rates were sourced from the American Council of Life Insurers, an industry trade group that has gathered these rates from all of the property transactions its members have financed since 1965; it's by far the longest data series of any type.

For long-term total return estimates we used the National Council of Real Estate Investment Fiduciaries' (NCREIF) National Price Index (NPI), the longest and most widely used series of private real estate market returns. However, while NCREIF provides a good picture of long-term returns, its reliance on appraisal-based prices artificially smooths the short-term data, making it a poor data source for estimating historical volatilities and correlation.

### Illiquidity constraint: Appraisal-based measures tend to smooth returns and camouflage volatility



Source: MIT Center for Real Estate and NCREIF

To illustrate, we plotted the growth of \$100 invested in the universe of NCREIF properties using appraisal-based and transaction-based measures of value (*display above*). The appraisal-based index is simply NCREIF's National Price Index, while the transaction-based index comes from MIT's Center for Real Estate. Over long periods the two series generate similar total returns, but the transaction-based series is more than twice as volatile. What's more, the two series have only a 0.45 correlation to one another. In other words, NCREIF properties have less than a 0.5 correlation to themselves under the two different valuation measures. Given this statistic, it is not difficult to understand how some

### Lots of sources; lots of problems—the absence of a truly representative benchmark hamstrings analysis, increases caution

	American Council of Life Insurers (ACLI)	National Association of Real Estate Investment Trusts (NAREIT)	National Council of Real Estate Investment Fiduciaries (NCREIF)	MIT Center for Real Estate (MIT CRE)	National Real Estate Index (NREI)	Real Capital Analytics (RCA)
Cap Rates	Yes	Yes	Yes		Yes	Yes
Price Returns		Yes	Yes	Yes	Yes	
Total Returns		Yes	Yes	Yes		
Transactions	Most	All	Few	All	Most	All
Start	3Q:65	1Q:72	2Q:78	3Q:84	2H:85	1Q:01
Granularity	National	National	Regional	National	City	National
Type	Private	Public	Private	Private	Private	Private
Levered	No	Yes	No	No	No	No

Source: AllianceBernstein

analyses show virtually no correlation between private real estate and stocks or between private and public real estate, even when the fundamental relationships are strong.

Unfortunately, even transaction-based indexes are no panacea. MIT's Transactions-Based Index, for example, suggests that total returns were nearly flat during the early 1990s. While apparently true for the universe of NCREIF transactions, this universe does not cover all investors or properties. Rather, it covers transactions mostly of unlevered, institutionally owned properties. Levered investors forced to sell an undesirable property during a time of limited demand likely realized very different returns. Faced with such incomplete and at times misleading data, we must rely heavily on theory, logic, and even anecdote to assess the drivers of commercial real estate returns and view quantitative conclusions with a healthy degree of skepticism.

## EXPLORING THE INVESTMENT LANDSCAPE

### Private to Public

Out of the rubble of the real estate implosion in the early 1990s rose the investment vehicles that define the modern commercial real estate investment era. Prior to this time, mortgage capital came mostly from life insurers and banks in the form of loans, while equity capital came from closely held private companies and pension funds in the form of direct investments. That is, real estate debt and equity capital were almost entirely reliant on private sources.

The turning point came with the real estate downturn, banking crisis, and regulatory changes of the early 1990s, which combined to shut off the flow of private mortgage capital. Many levered investors who could not refinance maturing mortgages took their private real estate portfolios public in the form of real estate investment trusts (REITs), essentially replacing private debt capital with public equity capital. Meanwhile, the Resolution Trust Corporation, tasked with the disposing of failed bank and savings and loan real estate assets, sold pools of whole mortgages to the public markets

through commercial mortgage-backed securities (CMBS) and pools of properties to opportunistically formed real estate limited partnerships (RELPs). REITs, CMBS, whole loans, and direct ownership together make up the four quadrants of the mature real estate capital market.

### The Four Quadrants of Today's Real Estate Capital Markets

	Private	Public
Equity	Direct Investments	REITs
Debt	Whole Loans	CMBS

### Private vs. Public

All of these vehicles (REITs, CMBS, RELPs) grew exponentially throughout the 1990s. And as their size and importance increased, people began to question whether their performance truly mirrored the performance of the underlying real estate markets. The answer is that performance has differed historically, but the discrepancies are easy to understand and likely to shrink going forward. Measures of real estate equity performance, for example, differ due to variations in leverage, property types, and activity of the universe in question (*display below*). After adjusting for these differences, long-term risk-adjusted returns should be similar.

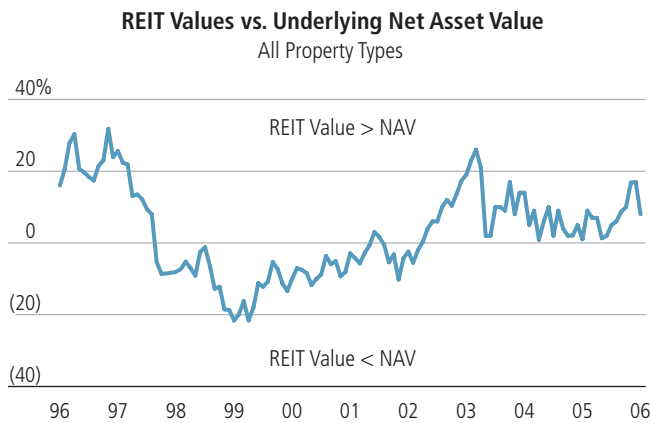
### Measures of Real Estate Equity Performance

	Direct	REITs	RELPs
Index	NCREIF	NAREIT	N/A
Leverage	0%	40%	80–90%
Property Types	Mostly core	Mostly core and hotels	Any and all
Development Activity	None	Some	Substantial

Source: AllianceBernstein

In the shorter term, however, performance seems to differ between private and public markets, even after adjusting for the above dimensions. The *following display*, for example, shows that public market REIT values often differ from their net asset values—the value of their underlying real estate holdings. What can explain such a difference?

## The private/public pendulum: Valuations sometimes favor public, sometimes private, vehicles



Source: Merrill Lynch, NAREIT, and AllianceBernstein

Much of the shorter-term private/public discrepancy can be explained by data issues: Analysts are comparing market-based REIT values to appraisal-based NAV estimates. However, beyond this chimeric real differences still exist due to the fact that, historically at least, different types of investors tend to predominate in different market segments. Prior to 1993, for example, REIT legislation prevented large institutional investors from making significant allocations to REITs.\* Small individual investors, in contrast, have no viable alternative to REITs. Differences between these investors in terms of their time horizon, objectives, and sophistication were responsible for some of the valuation discrepancies.

## Public Back to Private: Smart Capital Makes for Increasing Equilibrium

In reasonably efficient markets, such structural inefficiencies should not persist, and indeed over the past couple of years savvy investors have stepped in to capitalize on any differences between private and public market valuations. In 2005 and 2006 alone, when market valuations of *some* REITs looked cheap relative to their underlying asset value, over 10% of the publicly traded REIT market was taken private. On the other hand, if the public markets are again willing to pay a premium to private valuations, as they were in the mid-1990s, there will likely be another wave of REIT IPOs. The mobility of capital between public and private markets has likely relegated large valuation discrepancies between the public and private markets to a historical footnote.

\* The so-called "five or fewer" rule prevented five or fewer individuals from owning more than half of a REIT's stock, and institutions were considered one individual. Large institutions with large amounts of capital had difficulty making significant allocations to the generally small-capitalization REITs.

## APPENDIX

### More on Real Estate and the Estate

The following table provides a sample of basic strategies that may be used to transfer direct or indirect interests in commercial real estate during life to noncharitable donees. Other strategies may be beneficial in your particular case. Consult your professional tax advisor before implementing any strategy involving a transfer of real estate, including one or more of the strategies listed in this table.

#### Basic Wealth Transfer Strategies for Commercial Real Estate

Strategy*	Example	Potential Advantages	Potential Disadvantages
1. Direct gift	Parent transfers \$10M warehouse to child	<ul style="list-style-type: none"> <li>• Simple</li> <li>• Portion of transfer may be sheltered from gift tax by (i) gift-tax annual exclusion and (ii) lifetime applicable exclusion amount</li> </ul>	<ul style="list-style-type: none"> <li>• To extent not sheltered by annual exclusion and lifetime applicable exclusion amount, payment of gift tax will be required</li> <li>• Income tax liability shifts to child</li> </ul>
2. Leveraged gift	Parent transfers \$10M warehouse, subject to \$9M of mortgage debt, to child	<ul style="list-style-type: none"> <li>• Reduces potential gift-tax cost of transfer</li> <li>• If net cash flow is sufficient to pay off debt, excess cash flow, plus full appreciation in value of real estate, accrues to child's benefit</li> </ul>	<ul style="list-style-type: none"> <li>• Income tax liability shifts to child</li> <li>• If net cash flow is insufficient to pay off debt, child may be forced to sell real estate or pay off debt from personal resources</li> </ul>
3. Fractional interest gift	Parent transfers undivided ½ interest in \$10M warehouse to child	<ul style="list-style-type: none"> <li>• Interest may qualify for fractional interest discount, reducing potential gift-tax cost of transfer</li> <li>• During life, parent retains pro rata portion of net cash flow from real estate</li> <li>• At death, parent's retained interest may qualify for fractional interest discount for estate-tax purposes</li> </ul>	<ul style="list-style-type: none"> <li>• Amount of discount is speculative and should be determined by professional appraiser</li> <li>• IRS scrutinizes retained fractional interests in real estate when auditing estate tax returns</li> </ul>
4. Gift of interest in entity that owns real estate	Parent transfers outstanding non-voting interests in limited liability company (LLC) to child; LLC owns \$10M warehouse	<ul style="list-style-type: none"> <li>• Interest may qualify for valuation discount (lack of marketability, minority interest), which may exceed fractional interest discount for undivided interest in real estate</li> <li>• During life, parent retains pro rata portion of net cash flow from warehouse, and perhaps controlling interest over LLC</li> <li>• At death, parent's retained interest may qualify for valuation discount (lack of marketability, and perhaps lack of control)</li> </ul>	<ul style="list-style-type: none"> <li>• Amount of discount is speculative and should be determined by professional appraiser</li> <li>• IRS closely scrutinizes discounts taken in connection with transfers of interests in family-controlled entities</li> </ul>
5. Grantor retained annuity trust (GRAT)	Parent transfers \$10M warehouse to GRAT and retains right to receive annuity payments for fixed term of years; any assets remaining in trust at end of annuity term pass to child	<ul style="list-style-type: none"> <li>• Real estate net cash flow can be used to satisfy, in whole or in part, periodic annuity payments</li> <li>• If real estate net cash flow plus capital appreciation exceeds IRC<sup>†</sup> Section 7520 "hurdle rate," that excess passes to child free of transfer tax</li> <li>• Pursuant to IRC Section 2702, annuity payments are "self-correcting" if real estate is incorrectly valued at inception of trust</li> <li>• GRAT can be "zeroed-out" so that transfer has no gift tax consequence</li> <li>• GRAT is "grantor trust" for federal income tax purposes; therefore, (i) parent retains obligation to pay tax on income generated by real estate in GRAT and (ii) parent recognizes no capital gain or interest income with respect to annuity payments received from GRAT</li> </ul>	<ul style="list-style-type: none"> <li>• Required annuity payments tend to be higher than real estate net cash flow, so GRAT trustee may need to borrow or distribute fractional real estate interests "in kind" to satisfy those payments</li> <li>• IRC Section 2702 doesn't allow for much structural flexibility</li> <li>• If parent dies during annuity term, value of all GRAT assets as of date of death may be includable in parent's gross estate for estate-tax purposes</li> </ul>

Strategy*	Example	Potential Advantages	Potential Disadvantages
6. Installment sale to irrevocable grantor trust (IGT)	Parent gives \$1M cash to IGT, of which child is beneficiary; parent then sells \$10M warehouse to IGT, receiving in exchange \$1M cash and \$9M promissory note	<ul style="list-style-type: none"> <li>• Real estate net cash flow can be used to service debt</li> <li>• If real estate net cash flow plus capital appreciation exceeds interest rate on note (often set at applicable federal rate described in IRC Section 1274[d]), that excess passes to child free of transfer tax</li> <li>• Note should not be subject to structural inflexibility imposed by IRC Section 2702</li> <li>• IGT is "grantor trust" for federal income tax purposes; therefore, (i) parent retains obligation to pay tax on income generated by real estate in IGT and (ii) parent recognizes no capital gain or interest income with respect to note payments received from IGT</li> </ul>	<ul style="list-style-type: none"> <li>• IGT should own substantial assets prior to installment sale; if funded with large gift, payment of gift tax may be necessary</li> <li>• Real estate net cash flow may be inadequate to service IGT's entire debt obligation</li> <li>• IRS tends to challenge sales that purport to be "self-correcting" if real estate is incorrectly valued at inception</li> <li>• If parent dies prior to full note repayment, unpaid principal plus accrued interest on note as of date of death is includable in parent's gross estate for estate-tax purposes</li> </ul>
7. Paired sale/GRAT strategy	Parent gives/sells \$10M warehouse to IGT and simultaneously redeploys some liquid wealth to series of short-term, "rolling" GRATs, of which IGT is remainder beneficiary	<ul style="list-style-type: none"> <li>• Real estate net cash flow can be used to service debt</li> <li>• If GRAT total return exceeds IRC Section 7520 hurdle rate, that excess passes to IGT free of transfer tax and can be used to satisfy any remaining debt service on note—helpful in cases where real estate net cash flow is insufficient to retire entire debt</li> </ul>	<ul style="list-style-type: none"> <li>• Somewhat complicated strategy</li> <li>• Parent may need to redeploy substantial liquidity to rolling GRAT strategy in cases where real estate produces little or no current net cash flow</li> </ul>
8. Grantor retained income trust (GRIT)	Owner transfers \$10M warehouse to GRIT and retains right to receive trust accounting income for fixed term of years; any assets remaining in trust at end of income term pass to trust beneficiary	<ul style="list-style-type: none"> <li>• Appreciation in value of real estate passes to beneficiary free of transfer tax</li> <li>• GRIT is "grantor trust" for federal income tax purposes; therefore, (i) owner retains obligation to pay tax on income generated by real estate in GRIT and (ii) owner recognizes no capital gain or interest income with respect to income payments received from GRIT</li> </ul>	<ul style="list-style-type: none"> <li>• Present value of remainder interest is current gift, potentially subject to gift tax</li> <li>• Beneficiaries of a GRIT cannot include owner's spouse; owner's ancestors, descendants, or siblings (or their spouses); or ancestors or descendants (or their spouses) of owner's spouse; but may include, for example, owner's domestic partner, or owner's nieces and nephews<sup>‡</sup></li> <li>• If owner dies during income term, value of all GRIT assets as of date of death is includable in owner's gross estate for estate-tax purposes</li> </ul>

\* Generally, each transfer described in this table may be made outright or in trust for the benefit of the intended recipient. A trust may afford tax and asset protection advantages that may not be available to an outright transferee. Consult your professional tax advisor for more information.

† For purposes of this table, "IRC" means the Internal Revenue Code of 1986, as amended.

‡ These beneficiary restrictions do not apply to transfers in trust of an interest in the owner's "personal residence," as that term is defined in Treasury Regulations issued pursuant to IRC Section 2702(a)(3)(A)(ii). A GRIT to which a personal residence is transferred ordinarily is referred to as a qualified personal residence trust (QPRT). The focus of this research publication, commercial real estate, ordinarily will not qualify as a personal residence, so a QPRT will not ordinarily be a viable alternative for such real estate.

## NOTES ON WEALTH FORECASTING SYSTEM

### 1. Purpose and Description of Wealth Forecasting Analysis<sup>SM</sup>

Bernstein's Wealth Forecasting Analysis is designed to assist investors in making long-term investment decisions regarding the allocation of their investments among categories of financial assets. Our planning tool consists of a four-step process: (1) Client Profile Input: the client's asset allocation, income, expenses, cash withdrawals, tax rate, risk-tolerance level, goals, and other factors; (2) Client Scenarios: in effect, questions the client would like our guidance on, which may touch on issues such as when to retire, what his cash-flow stream is likely to be, whether his portfolio can beat inflation long term, and how different asset allocations might impact his long-term security; (3) The Capital Markets Engine: a model that uses our proprietary research and historical data to create a vast range of market returns and that takes into account the linkages within and among the capital markets (not Bernstein portfolios), as well as their unpredictability; and finally (4) A Probability Distribution of Outcomes: 90% of the estimated ranges of returns and asset values the client could expect to experience, based on the assets invested pursuant to the stated asset allocation, are represented within a range established by the 5% and 95% probabilities. We often focus on the 10th, 50th, and 90th percentiles as representative of the upside, median, and downside case, respectively. However, outcomes outside this range are expected to occur 20% of the time; thus, the range does not establish the boundaries for all outcomes. Expected market returns on bonds are derived taking into account yield and other criteria. An important assumption is that stocks will, over time, outperform long bonds by a reasonable amount, although this is in no way a certainty. Moreover, actual future results may not meet Bernstein's estimates of the range of market returns, as these results are subject to a variety of economic, market, and other variables. Accordingly, the analysis should not be construed as a promise of actual future results, the actual range of future results, or the actual probability that these results will be realized.

### 2. Retirement Vehicles

Each retirement plan is modeled as a traditional IRA, Roth IRA, or 401(k). One of the significant differences between these vehicles is the date at which mandatory distributions commence. For traditional IRA vehicles, mandatory distributions are assumed to commence

during the year in which the investor reaches the age of 70½. For 401(k) plans, mandatory distributions are assumed to commence at the later of the year in which the investor reaches 70½ or the year in which the investor retires. In the case of a married couple, these dates are based on the date of birth of the older spouse. The minimum mandatory withdrawal is estimated using the Uniform Lifetime Table as published on [www.irs.gov](http://www.irs.gov). Roth IRA vehicles have no mandatory distributions during the lifetime of the investor. For all vehicles inherited by the owner's child(ren), mandatory distributions begin in the year of the inheritance and are estimated using the Single Life Expectancy Table as published on [www.irs.gov](http://www.irs.gov).

### 3. Rebalancing

Another important planning assumption is how the asset allocation varies over time. We attempt to model how the portfolio would actually be managed. Cash flows and cash generated from portfolio turnover are used to maintain the selected allocation among cash, bonds, stocks, and REITs over the period of the analysis. Where this is not sufficient, an optimization program is run to trade off the mismatch between the actual allocation and targets against the cost of trading to rebalance. In general, the portfolio will be maintained reasonably close to the target allocation. In addition, in later years there may be contention between the total relationship's allocation and those of the separate portfolios. For example, suppose an investor (in the top marginal federal tax bracket) begins with an asset mix consisting entirely of municipal bonds in his personal portfolio and entirely of stocks in his retirement portfolio. If personal assets are spent, the mix between stocks and bonds will be pulled away from targets. We put primary weight on maintaining the overall allocation near target, which may result in an allocation to taxable bonds in the retirement portfolio as the personal assets decrease in value relative to the retirement portfolio's value.

### 4. Expenses and Spending Plans (Withdrawals)

All results are generally shown after applicable taxes and after anticipated withdrawals and/or additions, unless otherwise noted. Liquidations may result in realized gains or losses, which will have capital gains tax implications.

## 5. Modeled Asset Classes

The following assets or indexes were used in this analysis to represent the various model classes:

Asset Class	Modeled as...	Annual Turnover Rate
Cash Equivalents	3-month Treasury bills	100%
Intermediate-Term Diversified Municipal Bonds	AA-rated diversified municipal bonds of 7-year maturity	30
Intermediate-Term Taxable Bonds	Taxable bonds with maturity of 7 years	30
US Value Stocks	S&P/BARRA Value Index	15
US Growth Stocks	S&P/BARRA Growth Index	15
Developed International Stocks	MSCI EAFE Unhedged	15
Emerging Markets Stocks	MSCI Emerging Markets Index	20
Single Stock (Avg. Volatility)	Volatility: 30%; Dividend: 2%; Beta: 1.0	0

## 6. Volatility

Volatility is a measure of dispersion of expected returns around the average. The greater the volatility, the more likely it is that returns in any one period will be substantially above or below the expected result. The volatility for each asset class used in this analysis is listed in the Assumptions below. In general, two-thirds of the returns will be within one standard deviation. For example, assuming that stocks are expected to return 8.0% on a compounded basis and the volatility of returns on stocks is 17.0%, in any one year it is likely that two-thirds of the projected returns will be between (8.9)% and 28.9%. With intermediate government bonds, if the expected compound return is assumed to be 5.0% and the volatility is assumed to be 6.0%, two-thirds of the outcomes will typically be between (1.1)% and 11.5%. These ranges are slightly skewed relative to what one might expect because the volatility calculation assumes the returns are log-normally distributed. Bernstein's forecast of volatility is based on historical data and incorporates Bernstein's judgment. It should also be noted that volatility varies in different time periods, particularly for inflation and fixed-income assets.

## 7. Technical Assumptions

Bernstein's Wealth Forecasting Analysis is based on a number of technical assumptions regarding the future behavior of financial markets. Bernstein's Capital Markets Engine is the module responsible for creating simulations of returns in the capital markets. These

simulations are based on inputs that summarize the condition of the capital markets as of June 30, 2006. Therefore, the first 12-month period of simulated returns represents the period from June 30, 2006, through June 29, 2007, and not necessarily the calendar year of 2006. A description of these technical assumptions is available on request.

## 8. Tax Implications

Before making any asset allocation decisions, an investor should review with his or her tax advisor the tax liabilities generated by the different investment alternatives presented herein, including any capital gains that would be incurred as a result of liquidating all or part of the investor's portfolio, investments in municipal or taxable bonds, etc.

## 9. Tax Rates\*

Unless otherwise indicated, Bernstein's Wealth Forecasting Analysis has used the following marginal tax rates for this analysis:

Start Year	End Year	Federal Income-Tax Rate	Federal Capital Gains Tax Rate	Qualified Dividend Rate	State Income-Tax Rate	State Capital Gains Tax Rate
2006	2010	35.00%	15.00%	15.00%	6.00%	6.00%
2011	2055	39.60	20.00	39.60	6.00	6.00

\*Federal tax rates are blended with applicable state tax rates by including, among other things, federal deductions for state income and capital gains taxes.

## 10. Assumptions: Capital Markets Statistics

	Median 50-Year Growth Rate	Mean Annual Return	Mean Annual Income	1-Year Volatility	50-Year Annual Equivalent Volatility
Cash Equivalents	3.5%	3.6%	3.6%	0.8%	7.0%
Int.-Term Diversified Munis	4.6	4.8	4.5	4.4	5.5
Int.-Term Taxable Bonds	5.5	5.8	5.4	5.9	6.9
US Value Stocks	8.4	10.3	2.9	18.4	11.8
US Growth Stocks	8.4	10.7	1.6	20.3	13.9
Developed Int'l Stocks	7.7	10.7	2.9	21.3	13.5
Emerging Markets Stocks	5.7	10.8	2.9	28.1	22.8
Single Stock (Avg. Volatility)	5.6	10.5	2.1	30.4	27.0
Inflation	2.5	2.6	N/A	1.6	7.2

Based on 10,000 simulated trials, each consisting of 50-year periods. Reflects Bernstein's estimates and the capital markets conditions of June 30, 2006. Does not represent any past performance and is not a guarantee of any future specific risk levels or returns, or any specific range of risk levels or returns.

## **11. Mortality**

Mortality is modeled using our proprietary simulation model, which creates a range of death ages for a given age and sex. The outcomes of the mortality simulation model are then combined with the outcomes of the Capital Markets Engine on a trial-by-trial basis to produce summarized mortality-adjusted results. Mortality simulations are based on the Society of Actuaries, Retirement Plan Experience Committee Mortality Tables RP-2000.

# Selected Recent Bernstein Publications for Private Clients

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Bernstein's in-depth "blackbook" studies focus on critical investment and wealth-building issues, both evergreen and topical:

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Maximizing Personal Wealth When Selling a Business
- China:  
Is the World Really Prepared?
- Commodities:  
Handle with Care
- Ending Oil's Stranglehold on  
Transportation and the Economy
- The Envious Dilemma:  
Concentrated Stock—Hold, Sell, or Hedge?
- Hedge Funds:  
Too Much of a Good Thing?
- Keeping It in the Family:  
Planning for Efficient Wealth Transfer
- Looking Beyond Perpetuity:  
Customizing a Private Foundation
- Managing Trusts:  
Better Decisions in an Uncertain World
- The New Industrial Revolution:  
De-verticalization on a Global Scale
- Retirement: Plan Early and Often

## "Research Focus" White Papers

Our perspectives on focused areas of interest, ranging from complex investment vehicles to current trends affecting the global markets:

- Home-Country Bias:  
Where Traditional Asset Allocation Falls Short
- The Last Risk Premium Standing
- Oil's New Price/Demand Equation
- Research Innovation: Knowing More...  
Using Knowledge Better
- Saving for College:  
Putting 529 Plans to the Test
- Structured Notes:  
Do They Live Up to Their Promise?

## Special Topics in Investment Planning

Publications devoted to "demystifying" difficult planning issues, such as tax management, portfolio diversification, and market-timing strategies:

- Fortune & Misfortune:  
Investment Planning to Achieve One and Avoid the Other
- The Importance of Managing Investment Taxes
- Market Timing:  
If It Feels So Right...How Can It Be So Wrong?
- The Role of Faith in Investing

**Please contact your Bernstein Advisor if you'd like more information on or a copy of any of these publications.**





Bernstein was founded in 1967 to manage investments for individuals and families and is dedicated solely to investment research and management. Today, as a unit of AllianceBernstein L.P., we oversee some \$100 billion\* in private capital. Research is the basis of our ability to prudently manage the assets under our care; it is also the foundation of the full array of investment products, both global and local, that we offer.

#### **OUR CLIENT-CENTERED MISSION**

- To have more knowledge and to use knowledge better than any other investment firm in the world
- To use and share knowledge to help our clients achieve investment success and long-term security
- To place our clients' interests first and foremost

#### **Research Excellence**

We believe that superior research is the ultimate source of superior investment returns and requires both knowing more and using knowledge better. Knowing more—having an information advantage over other market participants—requires doing deep fundamental and economic research on a truly global scale. Using knowledge better means identifying and exploiting pricing anomalies that can provide incremental return and employing portfolio-construction techniques to manage risk and return efficiently.

With those goals in mind, we've built one of the largest and broadest research footprints in the business: 266 analysts\* operating in 12 countries and covering thousands of securities in capital markets around the world. Our research effort is organized into separate groups dedicated to growth equities, value equities, and fixed income, reflecting the unique needs of each investment approach.

#### **Disciplined Investment Processes**

We leverage our research with systematic portfolio management. Because our top investment management professionals determine the policies and make the decisions that underlie all our investment strategies, each client, regardless of account size, gets the very best our firm has to offer. These strategies and decisions are then further customized in relation to each account's tax status and the client's goals and circumstances.

#### **Broad Array of Services**

We offer value, growth, and style-blended stock portfolios across the global markets, real estate investment trusts, hedge funds, and taxable and tax-exempt fixed income portfolios—all actively managed.

#### **Wealth Management Planning**

Because we recognize that private clients of very substantial means have complex needs, we've created a team of people with expertise in a wide range of disciplines to counsel clients on sophisticated financial planning. Our wealth management professionals have experience in areas such as estate planning, intergenerational wealth transfer, philanthropy, alternative asset classes, liquidity events, and investment strategies for corporate executives. Working together with our clients' other professional advisors and aided by a quantitative state-of-the-art wealth-forecasting tool, we stress test multiple solutions to complex investment problems to help clients identify the strategies best suited to them financially and emotionally.

#### **Client Service and Communications**

We recognize that client needs are varied. Our investment professionals seek to provide clients with the investment approach that is best for them, and they pride themselves on personalized and timely service. Further, our content-rich communications explain the research basis for our portfolio decisions, our analysis of recent market developments, our market outlook, as well as other research findings. ■

\*As of March 31, 2007

