

Commercial Real Estate: New Paradigm or Old Story?

The compression of the commercial real estate risk premium.

Jon Ruff

Has a new paradigm arrived for the commercial property investor, one ushered in by secular changes in the structure of the real estate market? Or is the commercial market simply at a cyclical high and the recent exuberance just the latest instance of that old story—a short-lived speculative bubble? In the analysis that follows, we explore these questions, looking beyond the primary investment approaches—direct ownership or securitized REITs—in an effort to understand the underlying factors governing commercial real estate as a distinct asset class, and to determine whether commercial real estate still offers an attractive enough risk-return trade-off to warrant a meaningful allocation. Our research suggests that, despite the recent up-tick in subprime delinquencies and the chain-reaction impact it's had on credit markets generally, the long-term investment case for the asset class remains intact.¹

COMMERCIAL REAL ESTATE HISTORICALLY

For all their familiarity as structures, office skyscrapers, apartment complexes, shopping malls, and other 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 past 20 years, returns for this asset class—at almost 10%—have come in just a bit below stocks, but with volatility much closer to that of bonds, as shown in Exhibit 1.

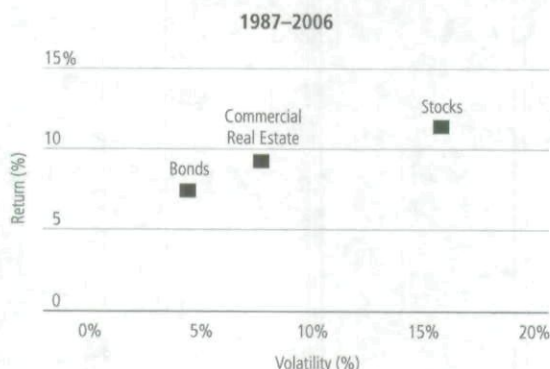
What's more, performance has been well balanced, with approximately two-thirds of the return coming from current income (cash generated by rents, net of operating and maintenance expenses) and the remainder being driven

JON RUFF

is a Director in the San Francisco Office of Bernstein Global Wealth Management.
ruffj@bernstein.com

EXHIBIT 1

Return/Volatility: U.S. Commercial Real Estate vs. Stocks and Bonds



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.

by property price appreciation, as Exhibit 2 illustrates. Commercial real estate's historical combination of strong income and growth characteristics makes it seem like an interesting stock-bond hybrid.²

COMMERCIAL REAL ESTATE TODAY

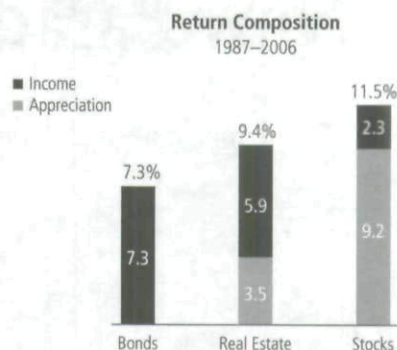
More recently, the prominence of commercial real estate as an investable asset class has been cycling to a new high. Capital flows began to accelerate as the stock market bubble deflated from 2000 to 2002, and investors fled high-flying growth companies for stability in real estate, which offered tangible assets and positive cash flows. What could be more Old Economy, more brick and mortar, than property and the stable income its buildings generate?

There was appeal for bond investors, too. With the Fed continuing to lower interest rates, the 10-year Treasury yield bottomed out at 3.6% in the third quarter of 2002. Meanwhile, the income yield on commercial property stood at nearly 9%. Investors flocked to commercial real estate, and since then it 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 Exhibit 3.

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. Exhibit 4 shows that, at year-end 2006,

EXHIBIT 2

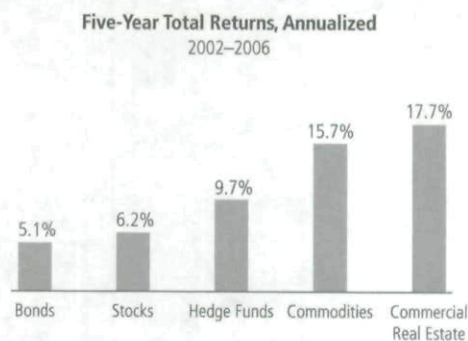
Income vs. Appreciation Breakdown: Commercial Real Estate vs. Stocks and Bonds



Source: Bonds are represented by the Lehman Brothers U.S. Aggregate Index, stocks by the S&P 500, and unlevered real estate by the MIT CRE Transactions-Based Index.

EXHIBIT 3

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.

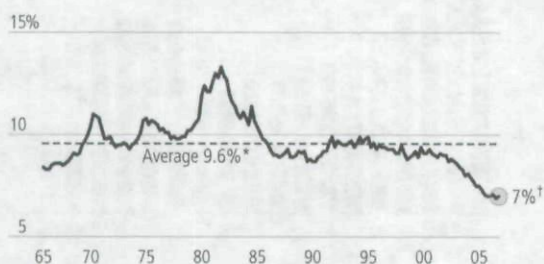
the yield offered by commercial properties—also known as the *capitalization rate*—stood at an all-time low of 7%, down nearly a third from its historical average. After accounting for the investment needed for ongoing capital expenditures, we would estimate an investor's actual income, or cash yield, at only 5%—a return on a par with Treasuries!³

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, as highlighted in Exhibit 5.

EXHIBIT 4

As Prices Peak, Real Estate Cap Rates Hit 40-year Low

Commercial Real Estate Income Yields
1965–2006



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

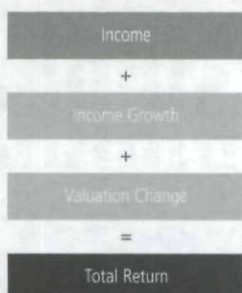
†Capitalization rate = net operating income/value.

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

EXHIBIT 5

How Commercial Real Estate Stacks Up

Components of Total Return



Source: AllianceBernstein.

- **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 properties directly.

We have analyzed the drivers of real estate returns and the evolution of the asset class, and our research has 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 expect growth not to exceed the rate of inflation. Combining current cash yields with inflation expectations of about 2.5%, we 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.

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

We have 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

There is 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 equal to the lease term and credit quality 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. On the one hand, a vibrant economy and an absence of new construction could cause demand to outstrip supply for space, pushing up rents; on the other hand, 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 balanced. As of this writing, vacancies stand at about their long-term average of 9% across all the major property types, as shown in Exhibit 6. 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%, as explained in Exhibit 7. 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 is no reason to believe that short-term income growth is at a cyclical low and set to move sharply higher.

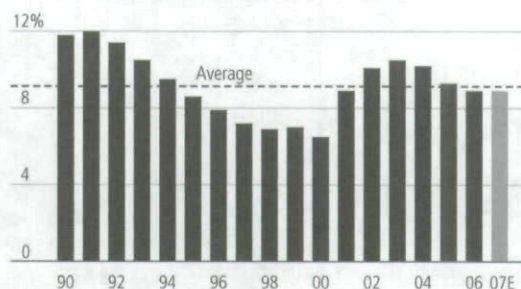
Long-Term Income Growth

With the short-term growth outlook modest at best, we shift our attention to commercial real estate's long-term prospects. We expect income growth over the long term to more or less track inflation because buildings, at base, are brick and mortar, land and labor. When finished, they

EXHIBIT 6

Commercial Vacancies

Average of Core Property Types

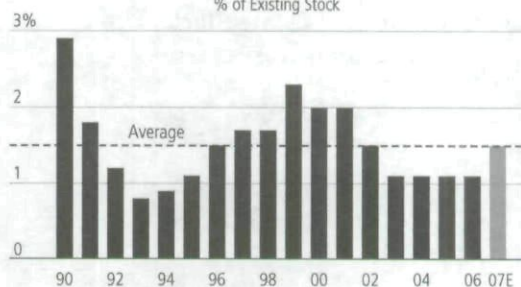


Source: Reis, Inc.

EXHIBIT 7

New Supply

Average of Core Property Types
New Supply
% of Existing Stock



Source: Reis, Inc.

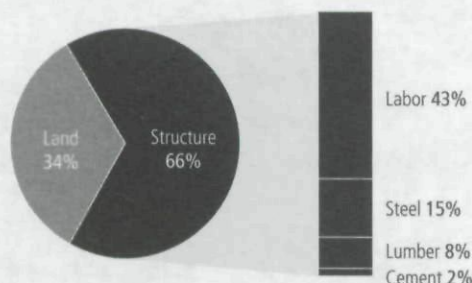
produce a stream of cash flows for their owners. If the costs of developing a building increase, an investor will require greater cash flows to achieve an attractive enough return.

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.

Exhibit 8 outlines the replacement costs for commercial property, which consist of approximately one-third land and two-thirds materials and labor.⁴ All three items bear a close relationship to inflation. Labor typically appreciates at a rate slightly higher than inflation, and materials at a slightly lower rate. Taken together, these factors suggest that building costs should grow at or about the pace of inflation, and, in fact, they have, as Exhibit 9 indicates.

EXHIBIT 8

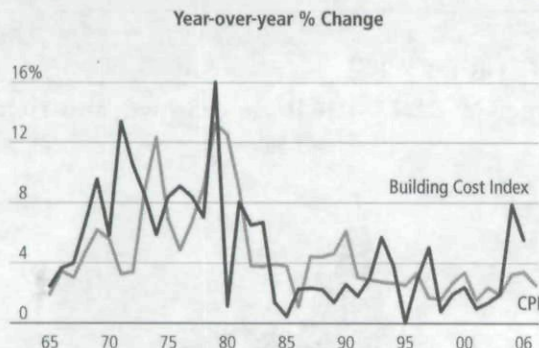
Commercial Real Estate Replacement Costs



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

EXHIBIT 9

Structure-Cost Inflation vs. Consumer Price Index



Source: Bureau of Labor Statistics and Engineering News-Record.

The wild card then is land. Some feel that land's appreciation potential should be limitless, since at some point the supply of it will 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 such as 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 the rate of inflation, any large divergence in long-term rent growth should be explained by the cost of land. Over the past 20 years, rent growth

in major U.S. cities, on average, has not even kept pace with local price measures—an indication that land has generated subpar growth, as illustrated in Exhibit 11.

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."

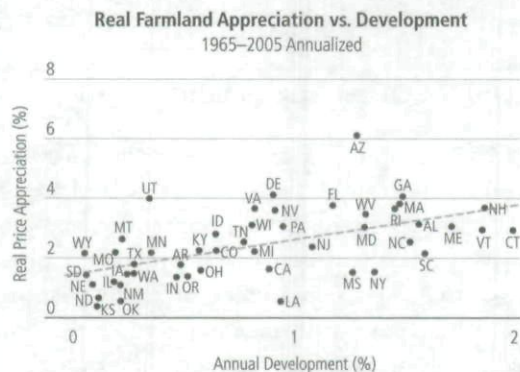
That the value of land grows at only about the rate of inflation may come as a surprise. But there are a number of commonsense factors that help to mitigate its appreciation potential, including:

- **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.⁵ Consider the Big Apple: The lack of real land appreciation in 20th-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.

EXHIBIT 10

Prices track the climb in a "land use hierarchy" from farms to residential to commercial usage



Source: US Department of Agriculture and AllianceBernstein.

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. Exhibit 10 illustrates this premium by showing that farmland in states with the most development over the past 40 years exhibited the highest price appreciation.

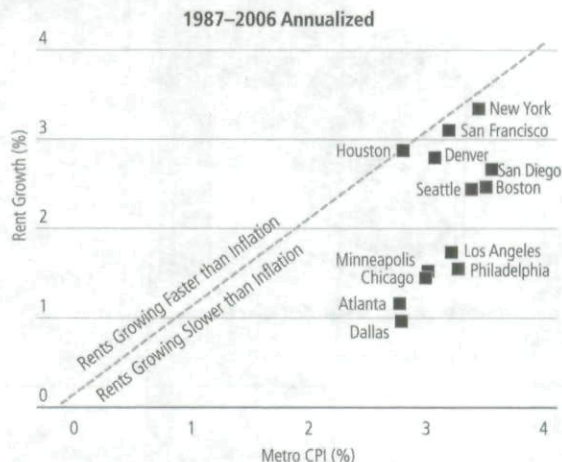
So in aggregate, the rate of land appreciation can be understood as inflation plus a (re)development option. Pick the right parcel, geography, or time period, and this development option could be worth far more than underlying inflation. Choose poorly, and no amount of supply traint or development potential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

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 the cash yield, the result is an estimate of what investors might reasonably expect from this asset class. We have used this methodology to create a historical series of real estate return estimates. The picture that emerges in Exhibit 12 suggests that the prospective total return of 7.5% currently offered by real estate is in record-low territory.⁶

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.

EXHIBIT 11

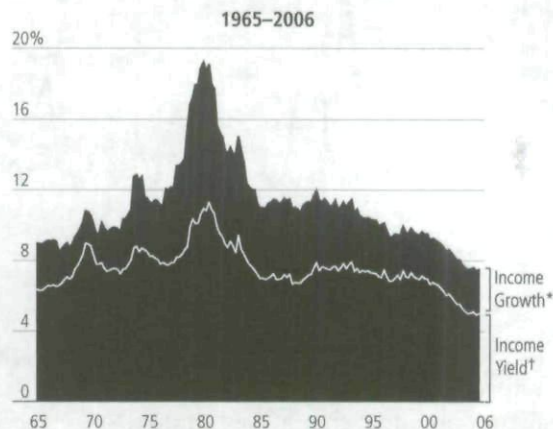
Metro Rent Growth vs. Metro Consumer Inflation



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

EXHIBIT 12

Commercial Real Estate Income Growth and Yield



*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.

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

Capital Market Pressures

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 that valuations can remain richer than they have historically been.

A key capital market force that has been affecting real estate values is the Treasury yield. 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 the risk of owning it. Exhibit 13 shows that just as real estate cap rates are well below their historical averages, the 10-year Treasury yield recently hovered nearly 300 bps below its historical average. Viewing the asset class through this lens explains at least some of the corresponding drop in commercial real estate's yields.

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 is 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 is 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 is low, it may be that valuations need to fall before the asset could better compensate investors for the risk. Exhibit 13 illustrates this point.

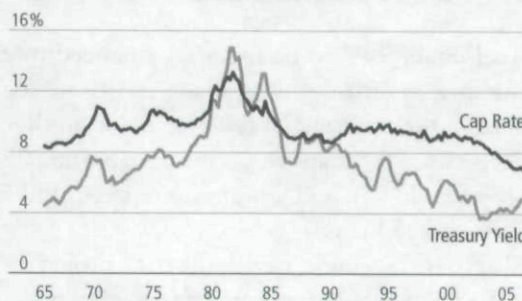
With this analysis, one can see that real estate was priced to offer a significant return premium over Treasuries in the late 1970s. This was the result of a conjunction of high income yields and expectations of strong income growth that accompanied the spike in inflation of that time. Then, in the early 1980s, the risk premium fell to record lows as investors bid up the value of real estate assets, and tax loopholes emerged that made real estate investing more advantageous for wealthy private investors.⁷

Due to the strong price appreciation of the last several years, the real estate risk premium has again dropped sharply and now stands about 3% higher than Treasury yields, as shown in Exhibit 14. While not quite at historical lows, it is a full percentage point below its long-term average of 4%.

EXHIBIT 13

Capitalization Rate vs. 10-Year Treasury Yield

1965–2006

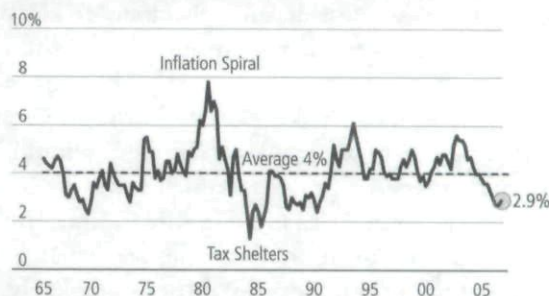


Source: ACLI and RCA.

EXHIBIT 14

Risk Premium Compression: Commercial Real Estate is Now Priced to Return Less Than its Historical Average

Expected Return over Treasuries*



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

Source: ACLI, GFD, Lehman Brothers, and RCA.

In analyzing these results, we would like to emphasize two points. First, while the return expected has dropped substantially, it fell from what appears 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 mortgage loans into tradable public securities—which is helping to drive a sharp compression in commercial mortgage spreads and lowering the cost of financing for real estate investors. The other is the broader compression of return expectations

across all asset classes, in part, the result of a global decline in business cycle volatility.

The Role of Securitization

Real estate used to be privately financed by banks and insurance companies who made mortgage loans to investors and then carried all the credit risk on their balance sheets. 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 balloon mortgages.

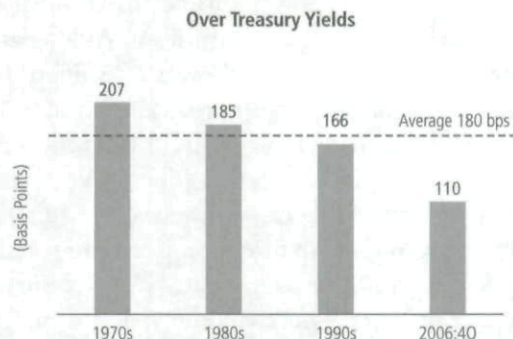
Securitization changes this equation, lowering the risk of diminished access to funding and the cost of that funding as well. It allows for the packaging of a pool of loans into a diversified, publicly traded security, which the lender can take off its balance sheet and sell to many new investors. This 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 Exhibit 15 shows, the commercial mortgage rate spread to Treasuries has fallen consistently over the last few decades. More remarkably, this spread seems to have collapsed of late; as of the fourth quarter of 2006, it stood 70 bps below its long-term average. This collapse in mortgage spreads has coincided with a dramatic increase in securitization, as Exhibit 16 illustrates. Fifteen years ago, less than 2% of commercial mortgages were held in commercial mortgage-backed security (CMBS) form; today that has risen to more than 26%.⁸ 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 is more to consider, and thus more reason to believe that the commercial real estate risk premium will remain below its historical average. Along with the increase in the number of providers of debt capital which has lowered refinancing risk for investors, there has been an expansion in the number and type of equity investors in commercial real estate. For example, real estate investment

EXHIBIT 15

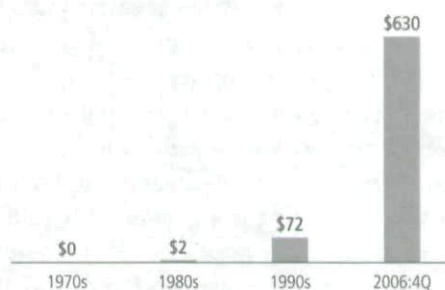
Commercial Mortgage Spreads Over Treasury Yields



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

EXHIBIT 16

Securitized Commercial Mortgages Outstanding (\$ Bil.)



Source: Federal Reserve Flow of Funds

trusts, or REITs, are publicly traded, professionally managed vehicles that bring new levels of liquidity and transparency to the sector. In the U.S. alone, REITs, which have grown from less than \$20 billion in market capitalization a decade ago to almost \$400 billion by year-end 2006, have dramatically increased both the breadth of investor type and the depth of capital flowing into real estate markets.

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

- **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 of data, meanwhile, has reduced the *information premium* required to invest in opaque real estate markets.

As the conventional risks of commercial real estate ownership have shrunk, investors have required less return to hold real estate which has caused the risk premium to fall.

Business Cycle Volatility on the Wane

The decline in real estate risk is also tied to a general increase in economic stability over the last 15 years, sometimes referred to as the great moderation. Consider U.S. gross domestic product (GDP) growth. Inventories, which are prone to wide swings, have historically represented about a quarter of GDP. But as the U.S. 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.

Another example is a more predictable inflation rate. The decline in volatility in this key variable is due to a number of factors. For instance, an increase in imported goods as a share of consumption has had the effect of disciplining prices through a vast expansion in the quantity and diversity of the supply of goods. This does not 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 surprise 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.

CONCLUSION

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 as Exhibit 17 shows. But only in hindsight can one safely determine whether something is a permanent feature or a cyclical shift. While our analysis is long term in

EXHIBIT 17

The Drivers of Commercial Real Estate Support 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

nature, it does highlight some short-term factors to watch for—rising interest rates, widening mortgage spreads, a drop in liquidity due to tightening credit markets, or a shift in the flow of equity capital. All could move against the asset class, separately or simultaneously. This could hurt investors 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.

So, 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.

ENDNOTES

I would like to thank several of my colleagues at Bernstein Global Wealth Management who have been instrumental in the development of this research, including Daniel Loewy, Matthew Bauder, Teresa Marziano, and Avi Sharon.

*The calculation we use to derive the commercial real estate risk premium is: $(\text{Cap Rate} - \text{Capex}) \times (1 + \text{short term income growth}) + \text{long term income growth} - 10 \text{ year Treasury yield}$.

¹For the purposes of this study, we are defining the commercial real estate asset class as a fully diversified, unlevered national cross section of core income-producing properties including office, retail, industrial, and residential apartment buildings.

²Understanding the data sources and data quality is critical in researching real estate valuations and returns. 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.

³It 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.

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

⁵"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

⁶Unfortunately, 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.

⁷Changes 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.

⁸Wall 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.

REFERENCES

Baranski, M., and W. Wheaton. "100 Years of Commercial Real Estate Prices in Manhattan." Working paper, MIT Center for Real Estate, May 2006.

Eichholtz, P., and D. Geltner. "Four Centuries of Location Value: Implications for Real Estate Capital Gain in Central Places." Presented at the 1997 annual meeting of the American Real Estate and Urban Economics Association, March 2002.

Felkner, J., and A. von Hoffmann. "The Historical Origins and Causes of Urban Decentralization in the United States." Joint Center for Housing Studies at Harvard University, January 2002.

Kaiser, R. "The Long Cycle in Real Estate." *Journal of Real Estate Research*, Vol. 14, No. 3 (1997), pp. 233-257.

Mueller, G. "Real Estate Space Market Cycles." Testimony before the Subcommittee on Financial Institutions and Consumer Credit of the Committee on Financial Services, United States House of Representatives, September 14, 2006.

Mueller, G. "What Will the Next Real Estate Cycle Look Like?" *Journal of Real Estate Portfolio Management*, Vol. 8, No. 2 (2002), pp. 115-125.

Wheaton, W. "The Secular and Cyclic Behavior of 'True' Construction Costs." MIT Center for Real Estate, January 2006.

Zhu, H. "The Case of the Missing Commercial Real Estate Cycle." *BIS Quarterly Review*, September 2002.

To order reprints of this article, please contact Dewey Palmieri at dpalmieri@iijournals.com or 212-224-3675.

©Euromoney Institutional Investor PLC. This material must be used for the customer's internal business use only and a maximum of ten (10) hard copy print-outs may be made. No further copying or transmission of this material is allowed without the express permission of Euromoney Institutional Investor PLC. Copyright of *Journal of Portfolio Management* is the property of Euromoney Publications PLC and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.

The most recent two editions of this title are only ever available at <http://www.euromoneyplc.com>