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SPECIAL EDITION

REAL ESTATE ISSUES

The Experts Speak Out . . .

Current Trends in Investment Real Estate

AMERICAN SOCIETY OF REAL ESTATE COUNSELORS

BEN D. DEVRIES, MIKE E. MILES AND STEPHEN B. WOLGIN RECEIVE 1992 BALLARD AWARD

Ben D. DeVries, Mike E. Miles and Stephen B. Wolgin, authors of the article "Prices and Appraisals: Where is the Truth?" have been named the 1992 recipients of the William S. Ballard Award. The honor, given annually by the American Society of Real Estate Counselors, recognizes the author(s) whose work best exemplifies the high standards of content maintained in *Real Estate Issues*, the Counselor's professional journal.

Through examining the intent, construction and nature of real estate indices, the article evaluates several issues: whether income returns on commercial properties are overvalued by the Russell-NCREIF Property Index (an index constructed from a combination of accounting records and appraised values which measures the performance of institutionally-owned property); whether the indexed properties are accurately appraised; and whether reported index income returns can be reconciled with acquisition capitalization rates. Along with their findings, the authors also report that while the well-documented appraisal lag still exists, it should become smaller as markets stabilize and appraisers have more transactions to evaluate.

(continued on page ii)

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Mike E. Miles

Stephen B. Wolgin

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Funding for the William S. Ballard Award, which carries an honorarium of $500, is provided by the generous contribution of the William S. Ballard Scholarship Fund in memory of Ballard, a late CRE (Counselor of Real Estate—a member of the American Society of Real Estate Counselors). Previous recipients of the award include William N. Kinnard, Jr., CRE and Mary Beth Geckler (1991), Lawrence S. Bacow (1990), Lynne B. Sagalyn, CRE (1989), Michael Farrell (1988), Alexander Bul and Nicholas Ordway (1987), Joseph O'Connor (1986) and James A. Graaskamp (1985).

Articles for consideration in next year's competition must be submitted to the Counselors by August 1, 1993.

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AUTHORS ADDRESS RESTORING INVESTOR CONFIDENCE

Real Estate Issues and the American Society of Real Estate Counselors are dedicated to the search for answers and solutions to real estate problems. In addition to the structural changes in non-residential vacancy rates and the recapitalization of America's financial institutions, a crisis of investor confidence has been precipitated by vast uncertainty regarding appropriate levels of real estate investment performance. Unless lenders and investors are confident that the pricing of real estate assets can be accomplished with reasonable accuracy, neither debt nor equity capital is likely to become readily available.

In this edition of Real Estate Issues, we are tackling the results of investor uncertainty. The 10 articles presented here provide current views and information on investment prices and yields written by experts in the field you are sure to recognize. Each of these authors present a specific perspective on some aspect of current prices, capitalization rates or yields. Our hope is that by presenting these views, we are working toward relieving some of the uncertainty now being experienced and restoring some degree of confidence in a favorable future.

It is our sincere intent that this edition of the journal will occupy a secure place on your reference shelf. As you look for solutions to the current real estate problems, utilize this edition as a reliable source of information and problem-solving techniques. We are confident that the subjects addressed by the contributing authors will satisfy you our discriminating reader.

We hope you agree this second special edition of Real Estate Issues, is special indeed.

Editor in chief

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THE PRESIDENT SPEAKS

THINKING THROUGH THE PROCESS

Years ago, a friend of mine described the U.S. businessman's reaction to problems as being not unlike the scenarios many of us grew up with—of the western hero or posse riding in at the last minute in a fury of activity to rescue the fair maiden, solve the problem, chase away the bad guy, or provide whatever solution was demanded.

While initially this observation was somewhat humorous, upon serious reflection, I find a great deal of truth in the analogy. Many of those leaders who today monitor, guide or direct U.S. businesses were brought up in the era of western cowboy movies where just this scenario was standard modus operandi.

In business planning, the results of this scenario are seen in:

1. A lack of forward planning.
2. An unwillingness on the part of business, industry, individuals and others to weigh the consequences of their individual activities in a much broader scope or environment.
3. Too much emphasis on the individual enterprise or operation and too little consideration of the potential global impact—whether that global impact is to a neighborhood, city, region, country or the world.
4. The absence of meaningful government/business interplay that allows a more meaningful consideration of factors that go beyond the scope of the single enterprise.

I grew up in eastern Kansas (Kansas City to be exact) not far from a city named Pittsburgh, Kansas. The name Pittsburgh was in tribute to Pittsburgh, Pennsylvania, and one of the major activities in the area surrounding Pittsburgh was strip mining of coal. In my young adult years, the strip mines were favorite fishing holes—the land having been taken over by the state, reclaimed in modest proportion and stocked with large mouth bass and other game fish. The mining companies, who some 50 years before had undertaken the strip mining operations in this area, were blamed and criticized for their lack of sensitivity to the environment and failure to respect the original condition of the land.

What was missing in the strip mining scenario was an ongoing thought process that would have incorporated, at the time permits were issued, the simple requirement that when mining operations cease, the land is to be restored. If only those who granted permits had thought through the process, the mining companies would have been required to place in escrow funds necessary to assure reclaiming the land when the projects were over. Since this was not a requirement, it was not done. It's difficult to imagine industry, whether it be U.S. or that of another country, taking a burden upon themselves that would be costly and, if not equally applied, would raise the cost of one provider compared to another. Since, in my opinion, no one thought through the process, the gouges in the land that result from strip mining were abandoned when the coal ran out, and at a later date, the mining companies were criticized.

We see a recent horrible example of the posse approach with the operation of the RTC in the Savings and Loans disasters. The RTC is the posse that we have sent, not to save the Savings and Loans, but to shoot the bad guys; rescue something, we hope can be rescued; and, like the cowboys in the movies, leave a mess and ride off into the sunset at the end of a day, patting themselves on the back or throwing their hats in the air claiming success.

What a different condition our Savings and Loans and other industries might be in if Real Estate Counselors could be brought early on into the loan review or development process to challenge feasibilities, pass on or comment on market saturation and serve clients unbiasedly in other areas of expertise where Counselors are well equipped. Could cities or states initiate review that might limit future real estate disasters? Yes, is too easy an answer, but it is worth thinking about. How do we influence the process, for the benefit of the real estate industry, without more unneeded government intervention? Would not the thinking process in advance benefit the industry far more than the posse routine coming into place after the disaster has occurred?

Will sensible senior officers of major banks or life insurance companies undertake such a nonbiased review process in the future? One can only hope.

Lawrence A. Kell, CRE
President
American Society of Real Estate Counselors

IN SEARCH OF THE RATE

Because of their large volume of risk-rated transactions, capital markets produce the most reliable data for selecting appropriate discount rates.

by James E. Gibbons, CRE

In valuing commercial real property interests the income approach has been, and continues to be, the most persuasive and widely used method of measurement. It is an application of the so-called principle of anticipation that describes value as the present worth of the future benefits of ownership.[1] Implicit in its development are two principal steps: (1) forecasting future benefits and (2) discounting future benefits to express their present worth. The second step raises the query: discounting at what rate?

Long standing and generally accepted real estate appraisal methodologies recommend the analysis of recent sales of comparable properties to extract indicated capitalization and discount rates. In certain market atmospheres this technique is adequate: however, in most markets there seldom are enough comparables to promote feelings of assurance in the rates selected, and in chaotic, volatile periods the process is generally unsatisfactory. For example, in the early 1990s restrictive credit policies employed by banks and insurance companies made capital unavailable, dried up normal market transactions and left only distressed sales by financial institutions that had acquired properties through foreclosures and bankruptcies and that were under regulatory pressure to recapture some capital. The Resolution Trust Corporation (RTC) poured billions of dollars of properties and mortgages into the marketplace under orders that the properties should be moved promptly. To accomplish the mission RTC, after some initial delay, provided seller financing on liberal terms. These conditions were far removed from those envisioned for the generally accepted definition of market value, and they rendered real estate transactions unsuitable for market discount rate extraction.

So with limited mortgage credit available and distress in the sales markets, where can the real estate professional look for reliable evidence to support plausible discount rate selections?

Primary Considerations

Before plunging into a discussion of discount rate selection, two fundamental factors should be reviewed; the first is the nature of a so-called real property investment. It is not real estate, land and bricks and mortar: it is simply money in the form of mortgage financing or equity venture capital or any combination of the two. Money is invested in the expectation of receiving monetary returns at a rate that is deemed appropriate in light of existing capital market conditions and the perceived risk of the venture. The rate of return clearly is a major consideration for investors. Money is fungible and can be put to work in any venture in any industry. Whats more money is available only in a finite amount at

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any given time. Enterprises therefore must compete to obtain a share of money by offering competitively attractive returns. Real estate is not exempt from this need to compete; it can claim no amount of money as a matter of right.

The second factor that needs to be reviewed is the subject of the investment. Again, this is not real estate; it is an interest or interests in real property, and the intangible rights to use, sell, lease, sublet, mortgage, give away, etc. These rights are legally documented and often publicly recorded. In valuations parties talk about the value of a property, but property is not a unit; it is a package of real property rights, each having an owner with his individual goals and strategies for achieving those goals. The rights are prioritized in their claims on a venture's earnings. Usually claims on a venture's earnings follow the chronology of creation of individual rights; however, subordination contracts may alter the order of precedence of claims. These are important considerations in rating the risk of various interests, which can be, and routinely are, separately valued and traded at earnings rates consistent with competition for capital and perceived risks. Consider the simple case of a single family dwelling whose owner holds an equity investment position encumbered by a mortgage created by a financial institution which may hold the mortgage, or as is more common, sell it in the secondary mortgage market. More complex ventures may be made up of equity, mortgage, junior mortgages, land leases, operating leases, etc. Therefore, in any investment analysis or valuation, it is critically important to identify specifically the subject real property interests, forecast the future benefits of their ownership, risk rate the position and select the appropriate earnings rate for discounting. Trying to squeeze multi-party, multi-property interest considerations into one value number can create confusion.

Capitalization Development

Appraisal literature opens the discussion of capitalization by offering the formula: I/R = V.[2] The literature states that the value of a real property interest is a function of its earnings capacity; therefore, valuation is accomplished by dividing income by the earnings rate that is necessary to attract capital to the venture. Thus begins the never-ending search for the *right rate*.

In the 1930s and 1940s the U.S. economy was depressed, interest rates were low, inflation was not a threat and rate volatility was negligible. However, the risk element in real estate investments was recognized, and it was agreed that the appropriate rate should provide some spread above the yield available from absolutely safe investments, such as U.S. Treasury bonds. Methods and procedures therefore were developed to build up a capitalization rate. These methods used as a baseline the return from a safe investment, and they made incremental additions to this baseline value to account for the features of a real estate investment that did not measure up to the standards of safe investments, such as illiquidity, risk ratings, burden of investment management and others. For example, the buildup might be as follows:

Safe investment rate	+ 2.5%
Penalty for additional risk	+ 1.0%
Penalty for illiquidity	+ 1.0%
Penalty for management	+ 0.5%
Total rate	6.0%

Although this approach was and is serviceable, it fostered uneasiness about the quantity and quality of market support for the adjustments in the buildup.

Thurston Ross, CRE, introduced another rate selection method called a band of investment. This method used a weighted average of interest costs for a property's mortgage and equity capital components. For example:

75% mortgage @ 8.0%	6.0%
25% equity @ 10.0%	2.5%
Weighted average rate	8.5%

This method represented the first effort to assess the influence of mortgage financing on property valuation.

Residual Approaches

Appraisal educators very properly pointed out that investors require both a return on and a return of invested capital and stated that a provision for capital recapture should be added to the interest earnings rate. They also reasoned that since land endures, only the building investment, a wasting asset, required recapture on a straight line or a sinking fund basis. Land and building residual techniques were developed to value separately the property's physical components.[3] Implicit in the development of the building residual was provision for a decline in income and value, which harmonized with the realities in the existing marketplace. The search for the *right rate* continued.

The Coming Of Ellwood

With the conclusion of World War II, new forces came into play; change was pervasive, as shown by rapidly increasing real estate values. In response to how appraisers should deal with these new conditions, a debate ensued. It revolved around whether the present change in real estate should be regarded as a temporary surge that eventually would subside and return markets to their former levels or was it a permanent trend that required new appraisal thinking. Of course, the problem's final arbiter was the investing public who kept buying at higher prices.

While appraisal education has always recognized the principle of anticipation and its future perspective, it has applied somewhat retrospective methodologies. Because analysis of comparable sales emphasizes previous transactions, it must be adjusted to reflect the market's perception of the future as of the appraisal date.

U.S. Supreme Court Justice Oliver Wendell Holmes said of the law that its life is not the

syllogism but responses to felt necessities of the times.[4] So, too, has real estate appraisal responded to the necessities of the times. In reaction to the atmosphere of change in the 1950s L. W. Ellwood, introduced his monumental work: the Ellwood Tables for Real Estate Appraising and Financing,[5] which acquainted the appraisal profession with the world of yield capitalization. Ellwood's procedures recognized the principles of anticipation and change by providing for future changes in incomes and values. They also followed the bundle of rights theory by recognizing the separateness of the mortgage and equity entities. Ellwood's approach to valuation was to price a property so it would produce a competitively attractive yield for the equity investment in light of specific mortgage terms and anticipated changes in incomes and values over the holding period. If mortgage terms for an investment were typically available in the market, the pricing would be a market value; however, the procedure could be used with any selected terms. This position was incorporated into the market value definition in the American Institute of Real Estate Appraisers' *The Appraisal of Real Estate*, 9th edition. It is also interesting to note that the principal ingredients of the overall rate for capitalization, mortgage and equity rates were products of trading in capital and money markets.

To have all the previously mentioned market conditions and factors in a single overall capitalization rate, Ellwood constructed the following formula:

$$R = y - mc \begin{matrix} + \text{ dep} \\ - \text{ app} \end{matrix} 1/S_{\overline{n}|}$$

The term "y" represents the specified equity yield a property will provide based on the investment's risk rating and the competition for funds in capital markets. Such yield is a composite of investment cash flow earnings augmented by property value increase (appreciation) over the holding period or diminished by value loss (depreciation).

The combined y – mc is a weighted average of equity yield and mortgage terms and includes the effects of mortgage amortization (debt reduction). The capitalization rate R then is a band of investment (weighted average) of equity yield and mortgage terms modified by anticipated property value changes over the holding period.

In 1970 Charles B. Akerson made a valuable contribution to the understanding of Ellwood's procedures by replacing the original horizontal algebraic expression with a vertical band of investment mode.[6]

Once an overall capitalization rate is selected, the next step is to use it in the value formulation I/R = V. In the early years of Ellwood, much difficulty arose over the definition of the term "I". "I" was considered to be a property's net income earnings; however, debate focused on the period to which earnings should be attributed. Ellwood stated plainly that "I" was the average stabilized income for the future investment term. He demonstrated that there was a *de minimis* difference between the value that used this income and the value that was discounted year by year, excluding violent distortions. Nevertheless, some practitioners continued to insist that "I" represented the first year's income. During the 1960s this writer worked closely with Ellwood in the teaching of his materials and became aware that the problem was bothersome. Ellwood finally decided to settle the controversy by introducing into the capitalization rate the "J" factor so one could use the first year's income and reflect a sinking fund pattern of growth in income at a rate (appreciation) selected by the appraiser.

An attractive facet of the Ellwood process is its usefulness in analyzing capitalization rates. For example, in judging the acceptability of any given rate, it is easy to compute the amount of property value and income change that can occur over an investment's holding term and yet have the equity position realize a selected yield. After this sensitivity testing was put in graphic form, Ellwood yield curves became a standard feature of most appraisals. Ellwood was the mightiest contributor to the search for the *right rate*.

Discounted Cash Flow Comes To The Fore

Ellwood gave appraisers and investors a practical vehicle for complete investment analysis. However, as the pace of inflation and market activity continued to accelerate, investors demanded a means of reviewing an investment's probable performance, on a year by year basis over its term, on a spreadsheet. A procedure, commonly called discounted cash flow (DCF), for many years had been used extensively by financial institutions in the analysis of investments in most fields of business. In the 1980s and early 1990s real estate appraisers siezed upon DCF as a vehicle to reflect and account for the volatility in many economic elements, particularly inflation.

What has DCF to do with the quest for the *right rate*? When all cash flows, such as purchase price paid, annual cash returns and proceeds of sale, are assumed to be known, one can easily compute the investment's expected internal rate of return (IRR) and make comparisons with yields from other similarly risk-rated investment opportunities in fields such as stocks and bonds. DCF therefore facilitates judgments about the feasibility and competitive attractiveness of an investment. It also is used by appraisers as a direct valuation approach, in which the annual cash returns and proceeds of ultimate sale are forecast and then discounted to present value at what the valuer deems to be the *right rate* in light of perceived risks.

The availability of computerization has made the DCF process expeditious and economical and facilitated the use of sensitivity analysis and the exploration of many "what ifs." Software packages have enabled appraisers to use lease-by-lease analysis to forecast financial performance.

Despite its considerable attractive features, computerized DCF poses the danger of a more mechanical than thoughtful analysis. Another thorny issue in the process is the estimate of the final cash

flow, the reversionary profit from the ultimate sale of a property. This sale price often is estimated by capitalizing, say, the 11th year cash return by a rate slightly higher than the appropriate current rate. Because reversionary profit often is a large segment of IRR and the events being forecast are remote, some fear and trembling may accompany this process. Nevertheless, the essence of property valuation is forecasting futures.

The Discount Rate

Clearly in DCF valuation the selected discount rate is a key item. Where does it come from? Appraisers have shown some preference for real estate sources, such as comparable sales and surveys of investor attitudes; however, the volatility and uncertainty in the post-savings and loan debacle period have eroded confidence in these sources. At least the belief that rents and values must rise to match inflation is no longer strong. In the recent past appraisers have accorded a small amount of attention to financial market activities, but gradually data from that source is developing the degree of attention it merits.

Where We Are Now

The search for the *right rate* led the appraisal profession through an evolutionary process, developing and refining the income approach to valuation but reflecting the continued need to develop stronger, more believable rate selection procedures. [7,8] It always has been clear that a real estate investment represents money invested in the expectation of receiving competitively attractive monetary returns in light of perceived risks. In the United States and most of the rest of the world, millions of investments involving billions of dollars and using instruments such as stocks, bonds, etc., are made each day in well-established, effective capital and money markets. These investments are bought and sold at prices that investors expect will provide yields consistent with those found in the markets for similarly risk-rated situations. Thus, any single transaction reveals the investor's forecast of future benefits, and the market's activities disclose market expectations about futures.

It is said that capital markets are the best predictors of future economic conditions; therefore, a reading of their events should benefit investors and valuers in forecasting future benefits and in selecting discount rates. Strangely, the real estate appraisal profession's acceptance and use of capital market data as the basis of rate selection has been slow. Perhaps the distress and distortions of the real estate market in the early 1990s may prompt a harder look at the wealth of data and guidance in the financial arena. A comprehensive look at this data will require the serious efforts of academics and practitioners in the pursuit of the necessary studies. The answers cannot be obtained from a casual glance at capital market data in a newspaper, but they can be attained through disciplined studies of the available data. After all, the capital markets reveal market-acceptable monetary yields on professionally risk-rated situations.

The Fed

Let us briefly examine a few aspects of financial market information to demonstrate its usefulness to real estate investors and valuers. First, a word or two (a book might be more appropriate) about the Federal Reserve System. This independent organization, created by Congress, promulgates and implements U.S. monetary policy. The Fed exerts substantial control over the availability and price of funds. Through its Open Market Committee activities, buying and selling U.S. Government securities, the Fed can quickly expand or contract money supply, thereby raising or dropping general interest levels in relation to the demand for funds. The Fed has direct control of short-term interest rates, such as the discount rate and the Fed funds rate, and less of an impact on rates of longer maturities which are powerfully influenced by the degree to which inflation may erode the value of securities.

The interest rates most directly controlled by the Fed are watched carefully by the financial community, which keys off them in establishing market levels for yields on other instruments of varying risks and maturities. It is interesting to note that the Fed's monetary moves appear to follow a cycle. When the economy is expanding vigorously, the Fed will be quick to detect growing inflation and counter it by restricting credit and raising interest rates. In times of recession the Fed will expand monetary policy to pump up the economy and bring about declines in interest rates. Witness the drastic rate declines of 1992 engineered by the Fed in its attempt to promote an economic recovery. This cyclical aspect of monetary policy is important and useful for making forecasts of future economic and monetary conditions. In the analysis of real property investment performance, both present and future rates are key elements.

Risk

Risk has always been a prime investment concern. In real property valuations from the earliest days the capitalization rate was set at some increment above the return from safe investments, such as U.S. Government bonds. The magnitude of the increment was estimated to cover the greater degree of risk associated with investing in real property. The assessment of risk is now handled in debt capital markets by professional rating organizations, such as Standard and Poor's, Moody's, Duff and Phelps and others that grade and label various levels of risk using symbols, such as Aaa, Aa, A, Baa, etc.

The rating agencies publish descriptions of the elements and qualities represented by the various rating grades. With this information and the results of market trading, one can judge the yield level necessary to attract capital to a venture whose perceived risks closely fit a rating description. For example, the Baa rating is described by Moodys as: "medium grade obligations, i.e., they are neither highly protected nor poorly secured. Interest payments and principal security appear adequate for the present, but certain protective elements are lacking or are characteristically unreliable over any

great length of time. Such bonds lack outstanding investment characteristics and, in fact, have speculative traits as well". In the case of a real property investment analysis, the objective is to judge whether the observed elements of risk match this description. Factors to be considered include market trends, lease details, credit standings of tenants, etc. When the risks of a real estate investment fit with, say, a Baa rating description, current trading levels for the Baa rating can be used to determine investment yield for the investment.

This procedure is not simple, but with research and study it can be applied to any real estate investment. Because it is based on daily published information from a large market that trades in professionally risk-rated investments, the procedure yields data that is broad-based and market-driven and, thus, is more persuasive than conclusions drawn from a small group of real property transactions.

Corporate bond quotes are one example of the information concerning capital market trading and yields in stocks and bonds that is available in the press (Figures 1 and 2). It is hardly adequate for the rate selection procedure described, but it can be readily supplemented with additional financial information and data from investment banking and brokerage organizations that actively market the securities involved.

FIGURE 1

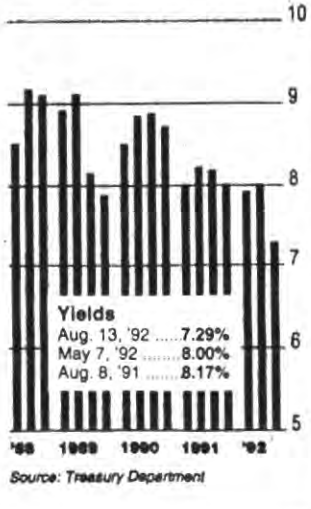
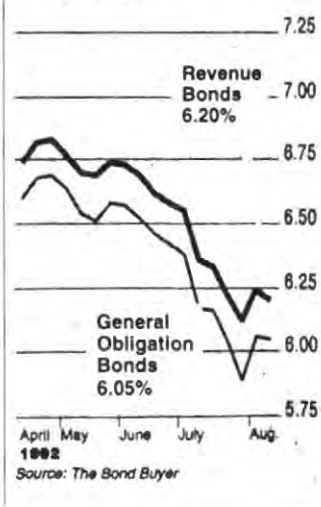


FIGURE 2



Securitization

In recent years securitization of real property interests has ballooned into a billion dollar business. It has been highly successful in residential mortgages where it has the support of efficient secondary markets, but it has not enjoyed great success in commercial real property because of the lack of standardization of product and underwriting. However, efforts in this area have led risk-rating organizations to develop methodologies for rating commercial real property on a portfolio or property-specific basis. More interesting developments surely will be forthcoming, because many regard securitization as the probable future source of the real estate industry's financing.

Adjustments

Once a risk-rated investment yield has been selected, two further adjustments must be made to apply the yield to real property investments. Under the most favorable realty market conditions the liquidity of a real estate investment cannot match that of moderately active securities. What increment should be added to the risk-rated investment yield to provide a suitale penalty for the liquidity of real property? This problem is thorny but reasonably manageable. Investments scheduled to be repaid in the near future, short maturities, in general are considered to be more liquid than those that come due later. The Treasury yield curve (Figure 1) illustrates this thinking by showing the variation in yields for Treasury securities of different maturities. The curve is normal when investments with long maturities offer higher yields than those with short maturities. Figure 3 is normal and quite steep. It shows a three-month yield of 3.25% and a 30-year yield of 7.4%. The 4.15% difference between three-year and ten-year maturities is significant for our purposes and amounts to 200 basis points of 2%.

The Treasury yield curve relates to Treasury issues only and is subject to gyrations during periods when the Fed is using monetary policy to slow or accelerate the growth of the economy. At times the curve may become inverted, as short-term yields exceed yields from investments with longer maturities. In such cases a curve for the A, Baa or high-yield category may be constructed and conclusions drawn from it.

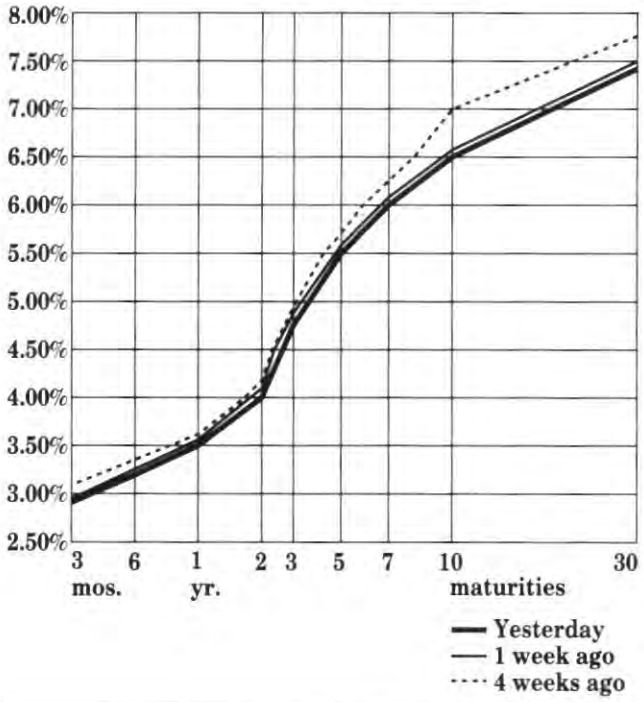
Other factors affecting liquidity require consideration, among them are average volume of trading in an issue and the identity and track record of the market maker or makers.

A further adjustment to the risk-rated investment yield is needed to account for the burden of investment management which is incurred with real property but not with securities. It is well recognized that property investments, at their simplest, are not passive. To get a handle on an appropriate market-established adjustment, one must research the fees charged by asset management organizations for handling a portfolio or an individual investment. At this point the process may be summarized as follows:

Baa risk rated yield	9.5%
Penalty for illiquidity	2.0%
Penalty for management	1.0%
Discount rate	12.5%

FIGURE 3

Treasury Yield Curve



In the distressed markets of early 1992 when much commercial real property fell into the high yield category, then:

High-yield corporate rate	10.95%
Penalty for illiquidity	2.0%
Penalty for management	1.0%
Discount Rate	13.95% or 14%

Sad to say, in some distressed markets the proper risk rating may be the junk bond category which produces higher yields.

Conclusion

The appropriate discount or capitalization rate for real property valuation seems to be revealed best in the trading activities of capital markets where the volume and availability of data are optimum. Professional risk rating has enhanced the reliability of selected rates. The selection of a risk rate for a real estate investment is not a simple process, but one that requires adjustments to account for the differences between securities and real property. While requiring judgment, determination of these differences should be largely market driven. It is hoped the field will attract much more attention and study.

NOTES

1. *The Appraisal of Real Estate*, 10th Edi, p. 33.
2. Ibid, p. 422.
3. Ibid, p. 4.
4. Holmes, Oliver Wendell Jr.:*The Common Law*, 1881.
5. AIREA: *Ellwood Tables for Real Estate Appraising and Financing* (Chicago, IL AIREA, 1977).
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PRICES AND APPRAISALS: WHERE IS THE TRUTH?

Acquisition capitalization rates support real estate index income returns.

by Ben D. DeVries, Mike E. Miles and Stephen B. Wolgin

> "Shaky pension fund real estate portfolios likely will be slashed in value by 15% to 20% this year, the deepest cut ever . . . I personally believe there is going to be another round of write-downs in 1992. I don't think we are at the bottom yet in all property types and in all markets," said AT&T's Mr. Russo. . . . Greenwich Associates' Mr. Smith believes, "a case can be made for a 20% spread between what real estate money managers are asking for their properties and what the private market is willing to pay." That spread is so wide, said Mr. Smith, "that real estate sales have virtually halted."[1]

An investor can buy a high-quality, unleveraged apartment house at the current market price and get an 8.5% first-year yield (NOI/price). The Russell-NCREIF annual income return is only 7.2% (first quarter 1992 annualized). Since income return provided by the index is a composite of property incomes divided by appraised values, are properties in the index on average overvalued? How accurate are the indexed properties' appraisals?

This article addresses this issue in four steps. It looks at the nature of real estate income return indices in terms of their intended benefits and the constraints associated with their construction. With this background, it examines the best available empirical evidence on the reliability of appraisal, labeling the result: the traditional appraisal lag. Using this foundation, it returns to the questions above and attempts to numerically reconcile index income yields with acquisition rates. Finally, the conclusions are reported.

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The Nature Of Indices

What are the benefits of indices?[2] The reasons for having indices are no different today than they were at the turn of the century, when Irving Fisher wrote the highly acclaimed, (but not widely read) *The Making of Index Numbers*:

> "To determine the pressure of steam, we do not take a popular vote: we consult a gauge. Concerning a patient's temperature, we do not ask for opinions: we read a thermometer. In economics, however, as in education, though the need for measurement is as great as in physics or in medicine, we have been guided in the past largely by opinions. In the future, we must substitute measurement. Toward this end, we must agree upon instruments of measurement . . .
>
> The use of yardsticks of 40 different lengths would be a source of confusion: the use of 40 different kinds of index numbers is no less confusing. If experts fail to clear up this confusion because they disagree on non-essentials, it will seem to many people, to whom the mathematics of the subject is a mystery, as though the experts could not agree on fundamentals. And so, without due cause, index numbers in general will be discredited and the study of economics impeded. For this reason, it is to be hoped that all those who are capable of understanding the subject will agree in adopting and advocating for general use the Ideal Formula or a closely similar formula."[3]

Drawing from Fisher and our own experience with contemporary real estate investment management problems, we have prepared a list of reasons for a real estate index (Exhibit 1). As this exhibit clearly indicates a reliable real estate performance index is critical to the institutional real estate investment community.

The progression of improvements in stock market indices can provide a framework for understanding the first of the real estate performance indices, e.g., the Russell-NCREIF Property Index. We appreciate that no index is perfect. Investors continue to use the "Dow", even though it may be the most flawed of all stock market indices, because they understand it. Unless we develop a similar understanding of the Russell-NCREIF Property Index, we will not achieve the objectives listed in Exhibit I.

EXHIBIT I

Why Have Real Estate Indices?

1. To study ex post performance (e.g., of an asset class) as a benchmark for asset allocation models.
2. To evaluate investment manager performance and to link such evaluations to investment philosophy and fund time horizons.
3. To manage passive investment strategies and all modified forms of "In Real Estate" diversification.

Table 1 lists several commonly used stock and body performance indices and illustrates the following conclusions:

- Indices have evolved (and improved) over time.
- No index is perfect, but the right index is very helpful in dealing with the issues laid out in Exhibit 1.
- One can use an index effectively only when one understands how it was created.

With this in mind, we believe it is instructive to consider the formulation of the Russell-NCREIF Index.[4] (The Appendix to this paper describes in some detail the construction and composition of the Russell-NCREIF Index.) Not a measure of all real estate,[5] the index measures the performance of institutionally owned property (specifically pension fund real estate assets).[6] It is constructed from a combination of accounting records and appraised values. Consequently, its reliability is a direct function of the quality of the underlying appraisals.

The Traditional Appraisal Lag

The best way to evaluate the reliability of commercial appraisals for the Russell-NCREIF properties is to compare the market value of properties that have been sold with presale appraised values. In 1991 a

TABLE 1

Common Economic Performance Indices

Indicator	Sample	Representation	Method
Dow-Jones Industrial Average	30 Industrial stocks	Covers 29% of all stock values	Price weighted
S&P 500	500 stocks	Covers 70% of all stock values	Value weighted
Wilshire 5000	About 5000 stocks	Covers over 98% of all stock values	Value weighted and adjusted for cross ownership
Russell 3000	About 3000 stocks	Covers over 96% of all stock values	Value weighted and adjusted for cross ownership
Salomon Brother's Broad Index	Bonds	Most investment-grade bonds	Constant maturity (approximate)

group at the University of North Carolina extensively studied verified sale prices of 469 properties from the Russell-NCREIF database with their pre-sale appraised values.[7]

Overall, the sale prices were 1.6% *higher* than the last appraised values. When broken down by time period, equal-weighted results, based on percentage differences, varied:

Overall mean	+1.6% (equal-weighted)
1978-1985 (the "up market")	+7.8%
1986-1987 (the "flat market")	+2.3%
1988-1990 (the "down market")	−3.3%

Since appraisals tend to lag market prices due to the nature of the appraisal process, these results seem logical.[8]

This type of analysis is useful for an investor who is concerned about the reliability of a total portfolio. To those concerned about the reliability of each appraisal, an analysis of absolute differences may be more useful. The results of an analysis of absolute differences are as follows:

Overall absolute average	10.7% (equal-weighted)
1978-1985 (the "up market")	12.7%
1986-1987 (the "flat market")	8.8%
1988-1990 (the "down market")	10.3%

Some of the variance in the 1978-1985 period may be due to lack of attention directed at the appraisal process. The differences in the 1986-87 period are smaller because the market was more stable and investment managers focused more attention on appraisals. The larger differences in the 1988-1990 period are attributable to the increased volatility of the market.[9]

When the two analyses above are value weighted (i.e., when the larger properties are allowed to have more influence), the results are not radically different. On an arithmetic basis, the values are:

Overall mean	+1.5%
1978-1985 (the "up market")	+7.3%
1986-1987 (the "flat market")	+4.0%
1988-1990 (the "down market")	−1.5%

After accounting for the reliability of individual appraisals (i.e., the absolute value approach), the value-weighted differences are:

Overall absolute average	9.2%
1978-1985 (the "up market")	9.9%
1986-1987 (the "flat market")	8.9%
1988-1990 (the "down market")	9.1%

On a property-by-property basis, the differences are much greater. Thirty-six properties sold at prices that exceeded their appraisals in the previous quarter by 20%, while 29 properties sold at prices that fell below their appraisal value by 20%.[10] Although individual properties at times sold for prices that differed significantly from their appraised value, the differences tended to cancel out one other. Therefore, we conclude that a rather high degree of confidence may be placed in the unit values that have been attached to larger portfolios of properties.

For our purposes in this analysis, the traditional appraisal lag in a down market may be defined as 1.5% to 3.3%. This is the expected overvaluation range we used to reconcile index income yields with current acquisition rates.

Reconciling The Numbers

The question: The investor can buy a high-quality, unleveraged apartment house and get an 8.5% first-year yield. The Russell-NCREIF income return is 7.2%. Since the income return is "basically" income divided by appraised value, are the properties in the index *overvalued*?

Before reconciling the numbers, we make two assumptions. First, we assume that we will obtain the first year pro forma income. Investors base their current yield of 8.5% on expected income. In this analysis we grant the assumption (i.e., we make no adjustment for the fact that next year's expectation is being compared to last year's reality, audited reality in the case of the Russell-NCREIF Index).

Second, we address the income versus sustainable cash flow question. Recognizing that in the early years replacement costs will be low for new properties, we assume that an adequate reserve for replacement has been deducted from the pro forma NOI (i.e., that the acquisition pro forma has a reserve percentage appropriate for the expected holding period not just for the early years). These two assumptions make reconciliation more difficult but strengthen the conclusions.

The first step in the reconciliation is an adjustment by property type (shown in Exhibit II). This easy "look-up" calculation increases the 7.2% Russell-NCREIF income return to 7.6%.

EXHIBIT II

Property Type Adjustment: Apartment

A portfolio composition adjustment is needed in any comparison.

In this very simple example, the 8.5% pro forma is compared with the NCREIF ex post *apartment* income return of 7.6% (first quarter 1992 annualized), not the 7.2% overall index income return.

The second necessary adjustment is for price level changes, shown in Exhibit III. Even in a low-inflationary environment income usually rises with the general price level on properties, such as apartments that have six- to 12-month leases.

To complete the test of the reliability of the appraisal-based index numbers, we consider the portfolio occupancy question. While acquisition capitalization rates tend to reflect a stabilized occupancy close to 95%, few existing portfolios average 95% occupancy across all apartments. Exhibit IV shows the implied occupancy calculated from the

adjusted Russell-NCREIF income return. If operating expenses are fixed, then the $70,588 unit value (8.5% capitalization rate) will earn the adjusted Russell-NCREIF return (7.8%) when the property generates revenue of $9,506. This implies occupancy of 90%, as indicated.

EXHIBIT III

Inflation Adjustment

Assume "all else is equal" and that ex post income will be higher with the passage of one year by the general rate of inflation. Inflation is currently around 3%. Thus: ex post income 7.6% x 1.03 = 7.8% ex ante income.

EXHIBIT IV

Implied Vacancy

Hypothetical apartment

Revenue at 95% occupancy	$10,000 (potential $10,526)
Operating expense	4,000
NOI	6,000

Market value at acquisition capitalization rate of 8.5% = $70,588

For this property (if valued fairly) to fit in the Russell-NCREIF Index perfectly, it would have to earn 7.8% (Exhibit III) on $70,588 or $5,506.

If operating expenses are unchanged over this modest occupancy range, then the revenue is $5,506 + $4,000 or $9,506.

This implies an adjusted occupancy of $9,506/$10,526 or 90%.

It has been our observation that most institutional managers have apartment portfolio occupancies in the 85% to 95% occupancy range with a clustering in the low 90% occupancy range. Thus, the implied occupancy of 90% is on the low side of the appropriate range.

If we use the traditional down market appraisal lag (1.5% to 3.3%), then the reconciliation fits right on the clustering. Applying the 1.5% lag (value-weighted mean) to the example in Exhibit IV, the $70,588 figure is overstated by 1.5% to $71,647; so the income return at 7.8% is $5,588, which implies an occupancy of 91% ($9,588/$10,526 = 91%). We cannot be exact about the average institutional apartment portfolio occupancy; 92% is, however, an average of the unverified quotes we have seen. This would imply that the appraisal lag is just over 4%[11], which is not an unreasonable figure given the historical evidence and the difficulties caused by the lack of comparables in today's illiquid market.

Conclusion

We have examined the intent, construction and nature of real estate indices, explored the empirical evidence for appraisal reliability and numerically reconciled an index income return with the current capitalization rate for a typical apartment acquisition. This analysis suggests that it is possible to reconcile reported index income returns with acquisition capitalization rates. Our analysis also shows that the well-documented appraisal lag probably still exists, but it is not anywhere near the magnitude suggested in the popular press.[12] It takes time to conduct the appraisal process; so some lag is to be expected despite the diligence of appraisers and investment managers. The lag today, however, is no larger than it has been historically. It should become smaller as markets stabilize and appraisers have more transactions to evaluate.

NOTES

1. Pensions & Investments, April, 1992
2. Theoretical work on indices can be traced to Laspeyres who first proposed formulas in 1864. In fact, much of this theoretical work has continued as the U.S. stock market has made several attempts to measure the movement of common stock prices. Each effort has improved the industry's ability to measure and portray the average experience of investors in the U.S. common stock asset class. Imagine the surprise of investors in 1938, when they learned that the Cowles Commission Standard Statistics Index of U.S. stock market performance had gained 364% from the period 1871 through 1937, but the Dow-Jones average covering nearly the same time period was up only 149%! This information was powerful in the late 1930s as investors recovered from the 1929 stock market crash. The differences in returns were attributed to an improved calculation methodology (market capitalization weighted versus price weighted) and a much broader representation of stocks. (The latter methodology included 351 stocks versus 30 stocks in the Dow-Jones Industrial Average.)
3. Fisher I: *The Making of Index Numbers.*
4. For a very interesting alternative approach using publicly traded real estate securities, see Torres', Michael: "Finding Answers to Real Estate in the Public Markets," Wilshire, September, 1991.
5. For a measure of the total size of the U.S. real estate market, see Miles, Mike: "What Is the Value of All U.S. Real Estate," *Real Estate Review*, Summer, 1990, and Miles, M., Pittman, R., Hoesli, M. and Blatnager, P.; "Real Estate Wealth," *Journal of Property Management*, 1991.
6. Returns are time weighted not value weighted because, in general, pension funds (and their consultants) use time weighted returns rather than internal rates of return to evaluate their investment managers' performance. Pension funds typically retain the responsibility for both the timing and amount of cash flow (i.e., contributions and withdrawals) to and from the investment manager. The time-weighted return is preferred because the formula minimizes the impact of cash flows on the return, and therefore, it allows one to directly compare returns with different cash flow patterns. It is important to note that internal rates of return and time weighted returns are identical when there is no cash flow.
7. See Miles, M., Guilkey, D., Webb, B., and Hunter, K.: *An Empirical Evaluation of the Reliability of Commercial Appraisals, 1978-1990* (Chapel Hill, NC: University of North Carolina, August, 1991.)
8. The appraisal process draws heavily on "comparable" sales and rents that must have occurred at a prior date.
9. In this analysis the authors looked at eight quarters of appraisals. Interestingly, while a few of the appraisals in the most recent quarter obviously were done with a contract of sale in hand, the earlier appraisals were not materially less accurate after adjustments were made for price level changes.

10. The researchers overlaid this data upon economic and population data in a simultaneous estimation procedure producing the following insights: First, prices tended to exceed appraised values in areas with higher than normal growth in population, on properties in better locations and on larger properties (measured by sales prices). Second, prices tended to be lower than appraised values on properties with high vacancies. Third, appraisers tended to be more accurate in valuing properties with high income per square foot and great functionality. Fourth, appraisers tended to err more on office properties with high vacancy rates and on properties in better locations.
11. The market value of $70,588 is overstated by 4% to $73,412. If this higher volume achieves the adjusted Russell-NCREIF return of 7.8%, then the revenue is $9,726, implying an occupancy of ($9,726/$10,526) = 92%.
12. The press often points out that income returns on the Russell-NCREIF Index have come down by 200 basis points over the decade, while real estate risk appears to be going up. The apparent anomaly is explained by judging real estate in a capital market context. Real estate yields have come down far less than bond yields which is logical given the increasing risk associated with real estate over the decade.

APPENDIX

Construction Of The Russell-NCREIF Property Index

A. Rules For Inclusion

1. Property must be held for a tax-exempt investor by a member of National Council of Real Estate Investment Fiduciaries.
2. Property must be *unleveraged*; leveraged properties are reported in a separate index. Unleveraged properties have the following characteristics:
   - Institutional real estate investments
   - Income producing
   - Fiduciary environment
   - Urban or suburban commercial; no agricultural or timber
   - Unleveraged or less than 5% debt
   - Wholly owned or joint venture
   - Existing; no pre-development
   - No development/lease up risk; properties must be 80% leased before inclusion

B. Rate Of Return Formula

$$\text{Income return} = \frac{\text{income}}{\text{beginning market value} + 1/2 \text{ capital improvements} - 1/2 \text{ partial sales} - 1/3 \text{ income}}$$

$$\text{Total return} = \frac{(\text{ending market value} - \text{beginning market value}) + \text{partial sales} - \text{capital improvement} + \text{income}}{\text{beginning market value} + 1/2 \text{ capital improvements} - 1/2 \text{ partial sales} - 1/3 \text{ income}}$$

C. Number Of Properties And Market Values Over Time

(Years at 12/31)

Russell-NCREIF Property Index

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Number of properties	291	371	493	681	781	846	907	991	1055	1100	1181	1274	1508	1622
Market value (in billions)	$0.73	$1.23	$1.98	$3.67	$4.89	$6.07	$7.89	$10.95	$12.21	$12.81	$15.61	$17.36	$22.31	$21.91

D. Distribution by Region

	Value (Years at 12/31)			U.S. Population 1990
	1978	1984	1991	
East	26.03%	24.46%	22.78%	20%
Midwest	20.55	15.97	15.88	24
South	17.80	24.97	17.66	35
West	35.62	34.60	43.68	21
TOTAL	100.00%	100.00%	100.00%	100%

E. Distribution By Property Type

	Years at 12/31		
	1978	1984	1991
Apartment	0.00%	0.00%	11.14%
Office	23.29	49.68	32.68
Retail	19.18	19.26	26.15
Research and development	6.85	9.51	10.41
Warehouse	34.27	15.97	17.57
Hotel	16.41	5.58	2.10
TOTAL	100.00%	100.00%	100.00%

RISK REWARD: THE RELATIONSHIP BETWEEN BOND YIELDS AND REAL ESTATE IRRs

BB-rated bonds and IRRs have similar risks; their rewards, however, are not comparable.

by Howard C. Gelbtuch, CRE

Real estate competes with alternative investments for capital. With securitized real estate offerings becoming more commonplace, Wall Street has been playing an increasing role in financing real estate. Strong similarities between the financial characteristics of real estate and bonds have lead to the application of traditional bond ratings to real estate investments by rating agencies. As real estate professionals become more exposed to rated offerings, it behooves them to understand better the relationship between the level of risk perceived by the bond buyer and that perceived by the real estate investor and, equally important, the anticipated return.

Few would argue that two of the major problems facing the real estate industry today are valuation and liquidity. Comparatively few (arm's-length) transactions have closed thus far in the 1990s, largely because of the gap between buyers' and sellers' pricing expectations. A lack of market activity to support the point of view of either side has further diminished the credibility of appraisers, who must rely upon the actions of informed buyers and sellers for their market value opinions.

Perhaps even more obvious is the lack of liquidity. Discouraging additional real estate investment are record high delinquency rates (7.3% in the second quarter of 1992)[1]; regulatory pressures by government agencies on lending institutions to establish larger reserves, which reduce the amount of money that may be put to work earning interest; and the generally negative perception of real estate as an investment, fueled by statistics purporting to show that no new office construction will be needed in the United States for at least a dozen years.

Wall Street has attempted to solve the pricing and liquidity crisis through a process known as securitization—the packaging of real estate-backed assets, generally mortgages, for sale in public or private markets. Large investment banks that underwrite these offerings also agree to create a market for future buyers and sellers, thereby providing liquidity and, by definition, pricing. Securitized pools contain real estate assets valued anywhere from $100 million (the minimum amount usually needed to justify the costs involved) to almost $1 billion; the Resolution Trust Corporation C-4 offering on June 29, 1992 was backed by $941 million of mortgages.[2]

To facilitate the analysis of the underlying collateral and, more important, convey the risks involved to investors in Wall Street jargon, securitized

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offerings receive an AA, A or B rating from a recognized rating agency such as Standard & Poor's or Moody's. (Note: Another increasingly popular answer to the problems of valuation and liquidity is the formation of real estate investment trusts or REITs. In November 1991 Kimco Realty raised $128 million in the first initial public offering of a REIT underwritten by Wall Street in three years. In a similar vein, shopping center-developer Mel Simon recently announced plans to raise $335 million by offering investors shares in Taubman Centers. This REIT has as its sole asset a 32.5% interest in Taubman Realty Group, a limited partnership with holdings in 19 regional malls.)

The Risk Factor

Bond Yields

The application of a rating to a security, described as ".....a current assessment of the creditworthiness of an obligor with respect to a specific obligation,"[3] requires the borrower to pay an interest rate commensurate with the perceived level of risk. Bonds rated Aaa by Moody's are considered to be more secure than those rated Baa; Aaa bonds therefore command a lower interest rate. The old real estate adage—the risk is the rate—works perfectly in the bond market.

Readers should recall that an interest rate is equivalent to an internal rate of return (IRR). The interest rate to the bond investor is exactly the same as the IRR to the real estate investor. Furthermore, both bonds and real estate have similar payment characteristics: a series of cash flows (interest payments) followed by a reversion (redemption) at the end of the holding period. In each case neither the IRR nor the yield to maturity are actually known until the investment is terminated. Because real estate competes with bonds for investment dollars and has similar payment characteristics (e.g., the length of time until maturity, which often is 10 years), bond yields *should* provide a reasonable proxy for real estate IRRs for an equivalent level of risk.

Historical yield-to-maturity data for most ratings is readily accessible from published sources. Table 1 summarizes available information from 1977 through the first quarter of 1992 for industrial bonds rated from BB—the lowest investment grade below which many regulated institutions are not permitted to invest—to AAA, the highest investment grade. The data sampled is from Standard Poor's. (Moody's uses a slightly different nomenclature, assigning Aaa, Aa, A and Baa as its top ratings. Each rating agency nevertheless uses a similar credit-rating *process*; a significant disparity in ratings by the rating agencies, therefore, is highly unusual.)

The Internal Rate Of Return

IRR did not become popular as a measure of real estate performance until the early 1980s; its use was prompted by the confluence of several important events that demanded analysis of *future* revenues and expenses:

TABLE 1

Average Bond Yield by S&P Rating
(1978 – First Quarter, 1992)

Year	AAA	AA	A	BBB	BB	B
1978	8.65%	8.80%	8.91%	9.57%		
1979	9.43	9.63	9.84	10.55		
1980	11.56	11.78	12.16	12.63		
1981	13.72	13.96	14.32	15.02		
1982	13.03	13.42	14.02	15.60		
1983	11.45	11.71	12.04	12.76		
1984	12.43	12.81	13.12	13.84		
1985	10.94	11.44	11.54	12.19		
1986	9.02	9.57	9.66	10.37		
1987	9.32	9.77	9.98	10.55		
1988	9.55	9.92	10.35	10.75	11.18%	12.24%
1989	9.16	9.47	9.94	10.35	11.77	12.96
1990	9.34	9.66	10.07	10.86	12.58	15.85
1991	8.69	9.04	9.51	10.12	11.84	15.54
1992	8.57	8.75	9.28	9.42	10.84	11.69

Note: For each year surveyed, increasing risk, defined as a lower rating, requires a higher yield to attract investment capital.
Source: Standard & Poor's 1992 Security Price Index Record.

- *Rapid Inflation.* The Consumer Price Index increased by 13.3% in 1979, 12.5% in 1980 and 8.9% in 1981 before leveling off in ensuing years.[4] With inflation, pervasive investors rushed into real estate; they could not, however, estimate operating expenses on the basis of a single year.
- *Rapid Escalation In Rents.* In the nation's largest office market, Manhattan, average office rents increased from $14.37 per square foot at the end of 1978 to $40.00 per square foot in December 1981.[5] Anticipated future increases were exemplified by the 1981 sale of New York's Pan Am Building for a first-year, cash-on-cash return of little more than 2%—a dividend rate that could be justified only by increases in future cash flow resulting in an anticipated IRR in the teens.
- *Development Of Personal Computers* and accompanying software programs. Computer hard- and software facilitated the analysis of multi-tenanted properties that were leased at or below market rents and had varying lease expirations, making possible the use of IRR.
- *Diversification.* To a lesser extent, the diversification of pension funds into real estate investment was prompted by the passage of the Employment Retirement Income Security Act (ERISA). This legislation encouraged investment in property and helped legitimize real estate as an asset class. Institutional investors were, at that point, much more comfortable with a "yield-type" analysis than most real estate investors were.

As even the most novice real estate professional knows, every parcel of property is different. With real estate markets so fragmented, understanding of buyers' and sellers' motivations is rarely, if ever, complete. Investor surveys of market participants'

expectations, including the minimum IRR required to attract investment capital, have been published on a regular basis only since 1988. Given the broad similarities between real estate and bonds, the relationship between alternative yields merits investigation. Summarized in Table 2 are IRR expectations as reported in the Korpacz Real Estate Investor survey.[6] Mr. Korpacz reports in the second quarter, 1992, edition: ".....although....not....statistically accurate.....the survey results do provide an important insight into the thinking of a significant part of the equity real estate marketplace."[7] As a check, responses in the Korpacz survey, when compared with other published material such as the Coldwell Banker National Investor Survey and Cushman & Wakefield's Real Estate Outlook, were found to be compatible.

TABLE 2

Reported Equity IRRs for Real Estate Investment
(1988 – First Quarter, 1992)

Year	IRR
1988	11.57%
1989	11.33
1990	11.38
1991	11.91
1992	12.11

A comparison of real estate yields as measured by the Korpacz Yield Indicator—a composite IRR average—with the bond yield data presented in Table 1 indicates that real estate yields fall in the range defined by B- and BBB-rated bonds, and they most closely approximate yields offered by bonds rated BB. This information is also presented in Figure 1.

Analysis

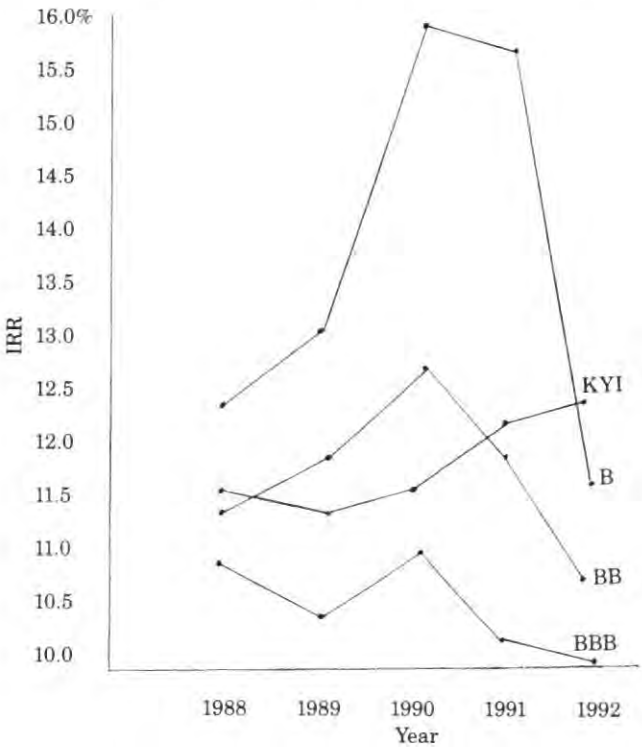
Historically B- and BB-rated bonds were considered "junk bonds" prior to 1988; thus, earlier data was not available. However, given the high correlation between comparably rated bond yields and real estate IRRs for the 1988-1992 period, it seems reasonable to conclude that yields and IRRs in the early to mid-1980s followed the same pattern.

Despite many similarities in investment characteristics between bonds and real estate, significant differences hamper direct comparison between the two investment vehicles:

- Bonds have a liquidity advantage. Most often a telephone call is all that is needed to trade most bond issues. Thus, for a comparable level of risk, real estate investors should demand a higher yield to compensate for the lack of liquidity.
- Real estate is far more management intensive. If all goes well, the bond investor can become a "coupon clipper," while the equity real estate investor constantly faces a myriad of micro-decisions related to leasing, property maintenance and expenditures for capital improvements, as well as macro-decisions related to employment trends, the business cycle and competitive properties. Again real estate should provide a premium return for comparable risk.

FIGURE 1

Bond Yield/IRR Comparison
(1988 – First Quarter 1992)



Offsetting these differences are several factors. First, if the property outperforms expectations made at the time of acquisition, the ultimate yield will be greater than the anticipated IRR. No such opportunity for increased performance is available to the bond buyer; the best he can hope is that performance will match expectations.

Second, some real estate investments offer tax benefits, although admittedly they are few and far between. Most tax benefits associated with investment properties were eliminated with the 1986 Tax Reform Act.

Perhaps most important, real estate historically has been perceived as being less volatile than either stocks or bonds. Institutional investors interested in diversification have been willing to trade the slightly lower returns from real estate for less volatility in yield.

In summary, from a perceived risk perspective it appears that industrial bonds rated BB incorporate all of the above factors and most closely approximate IRRs for equity investment in real estate.

The Reward

Historical Performance

If IRRs approximate yields available from investment in BB-rated bonds, i.e., if the risks are perceived to be similar, what about the rewards? How has the real estate investor fared in comparison to his bond-buyer counterpart?

The Russell-NCREIF Property Index, published by the National Council of Real Estate Investment Fiduciaries and the Frank Russell Company, is used as a proxy for real estate performance. This index measures the historical performance of income-producing properties owned by institutional investors. It includes only properties that are owned "free and clear" and measures two components: annual net operating income and property appreciation or depreciation as determined by real estate appraisals. (Infrequent trading of assets dictates the use of appraisals to measure property performance.) Although several subindices are arranged according to property type and/or location, the data in Table 3 comes from the total or composite index; as of the first quarter of 1992 this index contained data on nearly 1,700 properties with a market value approaching $23 billion.

TABLE 3

Russell-NCREIF Property Index
Annual Performance
(Years Ending in the First Quarter)

Year	Total Return
1981	15.19%
1982	16.33
1983	8.61
1984	14.79
1985	11.85
1986	9.68
1987	6.22
1988	5.43
1989	6.94
1990	5.51
1991	0.10
1992	(5.78)

Source: National Council of Real Estate Investment Fiduciaries and Frank Russell Company.

Institutional investors were attracted to real estate in the early 1980s for several reasons, some of them were articulated by Zerbst and Cambon in 1984[8] . Among the attractions were: (1) higher returns than those produced by stocks and bonds; (2) less variance than that produced by stocks or bonds; (3) a low correlation with stock and bond performance, i.e., good diversification; and (4) a better inflation hedge. As Mike Miles, executive vice president and director of investment research, Prudential Realty Group, later remarked: "Nothing could be this good."

Since 1988, when IRR data was first published on a regular basis, real estate has returned about one-fifth of its expected yield each year.

Average annual Korpacz yield indicator (1988 – first quarter 1992)	11.66%
Average annual Russell-NCREIF property performance (first quarter 1988– first quarter 1992)	2.44%

Going back a dozen years to 1981 (see Table 3), the Russell-NCREIF Index has generated just four years of double-digit returns and an average return of only 7.91% annually. A comparison of Russell-NCREIF real estate performance with historical bond performance, as measured by the Lehman Government/Corporate Bond Index, is presented in Table 4.

TABLE 4

Russell-NCREIF Index vs. Lehman Bond Index
(Years Ending in the First Quarter)

Year	Real Estate	Bonds	Index Difference
1978	102.90	100.48	2.42
1979	120.54	103.78	16.76
1980	147.95	94.83	53.12
1981	170.43	107.36	63.07
1982	198.25	118.46	79.79
1983	215.33	154.68	60.65
1984	247.19	162.77	84.42
1985	276.47	190.24	86.23
1986	303.24	245.23	58.01
1987	322.09	265.08	57.01
1988	339.58	276.81	62.77
1989	363.16	290.68	72.48
1990	383.17	324.69	58.48
1991	383.57	365.24	18.33
1992	361.39	406.80	(45.41)

Source: Russell-NCREIF, Lehman Brothers; compiled by Morgan Stanley.

Aided by strong performance during the highly inflationary late 1970s and early 1980s, real estate significantly outperformed bonds from 1978 through 1985. Because of overbuilding and a less inflationary environment since then, real estate investment has underperformed bonds so much so that, for the period covered in Table 4, bonds have been a more lucrative investment than real estate.

Recent strength in the bond market primarily results from decreases in long- term rates as worries about inflation abate. If the bond market sours and interest rates rise, this will have a negative effect on bond prices. Real estate risk, of course, is more directly related to the supply and demand cycle. Some investors in the 1990s have attempted to mitigate their risk by buying existing properties at a fraction of the replacement cost, anticipating a return to equilibrium.

Conclusion

Real estate investors can no longer adopt the same "buy and hold" strategy that worked during the late 1970s and the mid-1980s. Real estate values roughly doubled between 1978 and 1983. Four years later, on June 30, 1987, Rosenberg Real Estate Equity Funds (RREEF) surprised the institutional investment community by writing off more than $100 million of Texas and Colorado office properties, about 30% to 60% of appraised value. At best, prices today remain at the levels of four years ago, while many lesser quality properties now command far lower prices than they did in the mid-1980s.

Real estate IRR expectations have not been met for the last five years, probably longer. The last period of consistent double-digit performance was 1981 through 1985, when this criterion was met in four out of five years.

Most important, real estate investors satisfied with a yield of 11% to 12% may be better off with BB-rated bonds than with bricks and mortar. Although yield expectations are similar, bond performance has been superior. To some extent Wall Streeters now recognize this, as real estate-backed securities offer a yield several hundred basis points higher than comparably rated industrial bonds. Since 1990 real estate investors have placed increased emphasis on a capitalization rate approach and accorded greater weight to income in place than future property performance as measured by an IRR.

Until investors begin anticipating and are willing to pay for dramatic price appreciation and/or high inflation (most recently even real estate's historic high correlation with inflation is being questioned), current yield expectations of approximately 12% do not warrant the risks associated with direct real estate investment.

Those who believe real estate will outperform bonds over the next decade should be compensated for this risk with higher returns. Because of previous lower realized returns than anticipated, future institutional allocations in direct real estate investments may be less than originally thought a decade ago, resulting in an increasing emphasis on either credit-based net leased transactions or investment in securitized offerings that promise less risk and more liquidity.

NOTES

1. American Council of Life Insurance, Washington, DC.
2. Resolution Trust Corporation.
3. Standard & Poor's Special Report: "Multifamily Mortgage Securitization to Rise, October 1991, p 11.
4. *Consumer Price Index, All Urban Consumers*, U.S. Department of Labor, Bureau of Labor Statistics.
5. Edward S. Gordon Company, Inc.: *The Gordon Office Market Report—Midtown Manhattan and Downtown Manhattan* (New York: Edward S. Gordon Company, Inc.) October, 1988.
6. Peter F. Korpacz & Associates, Inc.: *Real Estate Investor Survey*, Second Quarter 1992, p 3.
7. Ibid, p 26.
8. Zerbst RH and Cambon BR: Historical returns on real estate investment. *Journal of Portfolio Management*, Spring 1984.

REAL RATES OF RETURN: DOES REAL ESTATE MAKE SENSE?

Yields from Treasury bonds and real estate investment trusts currently are the best indicators of appropriate real estate returns.

by James P. Ryan, CRE

During the early to mid-1980s real estate values increased dramatically due to the influx of capital from individual investors, syndicators, pension fund managers and foreign investors. The plethora of transactions during this period provided sufficient data for market analysts and appraisers to abstract capitalization and yield rates. As markets changed over the last several years, the number of transactions has decreased markedly. The oversupply of space, particularly in office buildings, coupled with the overall decline in the economy caused many investors to withdraw from the equity market.

Declines in value also have reduced the underlying security of many loans, restricting banks and other institutional lenders from making new mortgages. In fact over the last two years the value of office buildings in some pension fund portfolios has declined 50% or more. Negative appreciation, as shown in the FRC/NCREIF index since the fourth quarter of 1989, and concern about the economy also have kept buyers on the sidelines.

As values have eroded and returns declined, many investors have withdrawn totally from the real estate market. Low returns and business reasons, such as retiree benefits payouts, have prompted some plan sponsors to redeem their shares in funds, placing additional burdens on liquidity. Although investment managers recognize that it is not prudent to sell in a down market, some must sell to meet withdrawal requests from clients. Investor uncertainty and tight credit policies by lenders have created a void of meaningful data in the market to demonstrate market pricing. The limited data that is available is subject to various influences and pressures and requires significant adjustments by analysts. This article focuses on alternative sources of comparable yield data to support the valuation of real estate.

Returns

A structural shift has taken place in the real estate industry. The days of independent entrepreneurs or developers buying or building a project, and their institutional partners supplying most (if not all) of the capital, with little or no control, are gone. Today, pension funds, real estate investment trusts (REITs), foreign investors and other institutional players seek real estate investments with defined objectives and meaningful participation in mind. They are conscious of the risk/reward relationship and expect more direct involvement in the

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decision-making process. Many institutions have increased their real estate portfolios (in some cases by default of partnerships, foreclosure or other involuntary processes) and can draw upon property level experience to enhance future returns and make informed decisions. The expanded exposure to real estate, particularly within financial institutions and/or publicly traded companies, has heightened the relevance of performance to an organization.

Today's more powerful computer technology and networked databases also have made data more readily available. Investors no longer simply compare one real estate deal against another or look at the most recent sales in a market to make an acquisition decision; they consider alternative (non-real estate) investments and weigh the risks of a property against them. Far more scrutiny is applied to tenant underwriting and the timing of lease expirations than in the past. Property analysts must examine the industries of major tenants and judge their potential.

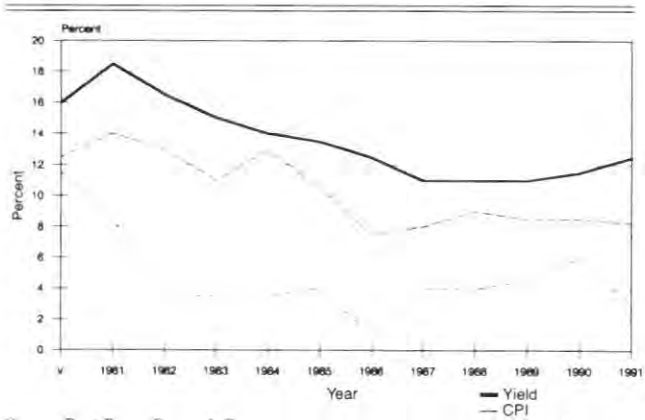
The dramatic changes in the world over the last two years and their impact on the U.S. economy have forced investors to delve deeper into the strength of tenant income streams. A few years ago tenants like Wang Computers, Eastern Airlines, Security Pacific, Drexel Burnham, Integrated Resources, etc., were considered to be desirable lessees. Within a relatively short period of time these and other similar companies filed bankruptcy or merged with other companies, potentially reducing their worth to a property. Now the heavy focus on the quality of cash flows requires discounts for weak tenants and more tenant/business analysis during the underwriting process.

The political reconfiguration of Eastern Europe has contributed greatly to the reduced need for a large defense budget. Therefore, defense-related businesses require closer scrutiny as lessees. Investigation into the specific use of space and viability of tenants is becoming increasingly important. Currently many property owners seek merely to fill vacant space, but analysts valuing a lease or property must focus not only on occupancy but on the worth of each tenant.

Appraisers and others therefore need to expand their due diligence to evaluate properly the risks of a new age. There is no substitute for good judgment and sound reasoning. However, consultants, analysts, appraisers and others need to adjust to new forms of tenancy and evaluate real estate from an occupancy cost perspective. This change in perspective may be viewed from two vantage points: the tenant's and the buyer's. Tenants want economical space and seek opportunities to realize the greatest net return. These goals may be accomplished by leasing high-quality space if the tenant's client base expects superior furnishings, or they may be accomplished by leasing a low-cost alternative if the tenant is driven by cost-cutting pressures. Office tenants in the 1990s will be sensitive to occupancy costs, as most businesses will be pressured to increase efficiency and profit margins. Buyers will seek to minimize risk and maximize return even more now than they have in the past. In contrast with the market of three or five years ago when buyers were much more aggressive and had the perceived benefit of strong appreciation to compensate for mistakes, the market of today has a dearth of transactions, reflecting investors' demands for higher returns.

FIGURE 1

Historical Real Estate Yields vs. Ten-Year Treasuries and the CPI



Source: Real Estate Research Corporation, Quarterly Real Estate Investment Surveys.

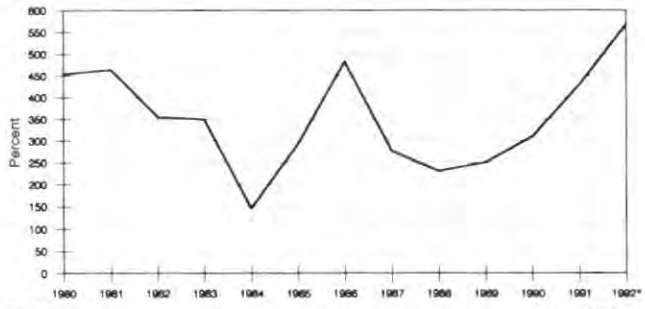
Most investors evaluate stocks, bonds and other vehicles, domestic and foreign, against real estate returns. Ten-year Treasury bonds historically have provided a starting point for valuing real estate returns. As shown in Figure 1, the yields for real estate, Treasuries and the Consumer Price Index (CPI) have followed similar trend lines. Anticipated real estate yields over the last 11 years consistently have exceeded yields for ten-year Treasuries to reflect the risk premium. Beginning in the late 1980s investors' confidence in achieving projected yields fell, creating a confidence premium.

Figure 2 shows that the spreads between real estate yields and ten-year Treasuries have ranged from a low of 146 basis points in 1984 to a high of 482 in 1986; their average spread or real estate risk premium was 327 basis points during the 1980s. Obviously the higher spreads reflect greater perceived risk for real estate as measured against Treasuries at various points in time.

Due to the cyclical nature of real estate, high spreads indicate buying opportunities if the investor is confident that the projected income can be achieved; a low variance reflects selling opportunities. In late August, 1992, ten-year Treasuries were yielding 6.47% as measured against average real estate yields of 12.1% for a spread of 563 basis points. When compared with the average, this spread reflected a premium of 241 basis points. As yields for alternative investments dropped, the confidence premium for real estate increased. Lower

FIGURE 2

Spreads between Real Estate Yields and Ten-Year Treasuries



Source: Real Estate Research Corporation.

growth rates for projected cash flow and conservative releasing assumptions greatly increased the probability of realizing projected returns. Most valuation assumptions today are deemed to be reasonable; they do not follow market examples of the greater fool theory, which influenced values over the past few years. The historically high spread between real estate and Treasury yields means that investors are waiting for experience to demonstrate that current projections are fair. And the gap continues to widen due to the increased pressure on sellers. The question is: At what point will the trend line change? If today's projected cash flows are correct and returns are realized, capital will return to real estate. As capital returns, the credibility risk premium will drop to a more normal level, and we should see real growth in value and a decline in anticipated real rates of return. But until this happens the wide return margin and conservative cash flow projections will produce excellent returns for investors who recognize the imbalance of today's market.

Analysts should be sensitive to the relative position of real estate returns to comparable investments and evaluate the specific strengths and weaknesses of each property against the market. Currently there is a perception that projections do not represent future performance and that therefore yields are uncharacteristically high. Large amounts of capital are waiting to invest in real estate once the market hits bottom. This realization will not become evident until the market has already begun to rebound.

Table 1 assesses anticipated real estate yields in relation to the CPI. When the projected 12.1% real estate return for 1992 is compared with the expected 4% inflation rate, an 8.1% real rate of return is indicated. If a 4% inflation rate is assumed for the next 10 years, a real rate of return of 2.47% is reflected for ten-year Treasuries vs. an 8.1% real rate of return for real estate. It is interesting to note that the confidence premium (real estate real return—ten-year Treasury real return) for achieving the 8.1% return has grown from about 150 basis points in 1984 to 563 today.

TABLE 1

Real Estate Yields vs. the CPI

Year	Real Estate Yield	CPI	Real Rate of Return
1980	16.00%	12.5	3.5
1981	18.55%	8.9	9.65
1982	16.55%	3.8	12.75
1983	14.60%	3.8	10.8
1984	13.90%	3.9	10
1985	13.55%	3.8	9.75
1986	12.50%	1.1	11.4
1987	11.15%	4.4	6.75
1988	11.15%	4.4	6.75
1989	11.00%	4.6	6.4
1990	11.65%	6.1	5.55
1991	12.15%	3.1	9.05
1992	12.10%	4	8.1

Source: RERC; Kiplinger Washington Letter.

Real estate's recent poor performance has been due primarily to overly optimistic cash flow projections used in the acquisition and subsequent valuation analysis (since valuation simulates buyers). Because demand has outpaced supply, aggressive projections have produced apparently achievable cash flows and acceptable yields. Today's market assumptions for the most part are much more conservative and in many cases pessimistic; so the realization of projected yields is much more feasible. The increased likelihood of realizing projected yields should reduce the confidence premium. The real estate market is in a transitional stage. Structural changes are being made in ownership groups and methods of evaluation. The motivation to acquire/sell real estate also is changing based on portfolio needs and yield opportunities. Real estate valuation requires a broad understanding of investment markets and motivations.

Focus On Investment Priorities

It is interesting to note how investors' perceptions of the future as well as current economics create different premiums in real estate. In certain periods, like 1988 and 1989, a premium was placed on appreciation, particularly in regional shopping centers. Properties were bought at very low initial yields in anticipation of higher future earnings. Now the premium is placed on high initial returns and liquidity; limited weight is given to appreciation. Real estate investments compete for capital with other alternative investments and must comply with the more stringent capital market standards. As a result, they generally seek high initial yields that compare favorably with yields on medium- to long-term government bonds and place less weight on appreciation. The illiquidity of real estate funds has cast doubt on the appraisal process and made it difficult to support values. The only real support for values will be renewed transaction activity. Until an active transaction market returns alternative markets will provide the best support for appropriate yield rates.

As mentioned, the spreads over Treasury bonds provide valuable insight into the market.

REITs

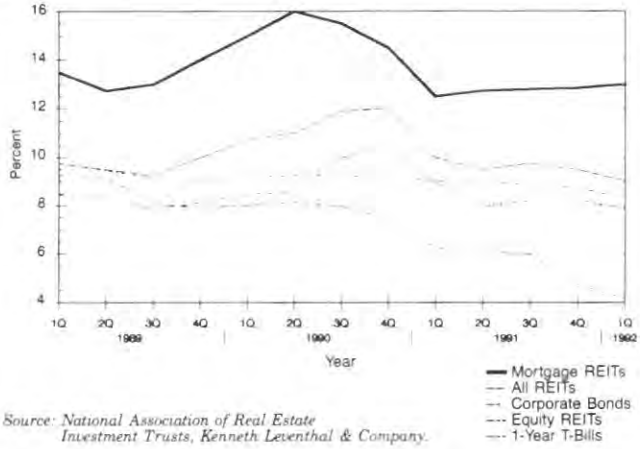
Another benchmark is the REIT. A REIT is a corporation or business trust or an unincorporated association whose income is not taxable at the entity level if it meets certain tests of the Internal Revenue Service. It raises capital by issuing shares of stock or other forms of securities and by borrowing. It must make cash distributions of at least 95% of its annual taxable income.

A REIT must have at least 100 shareholders, but it may be publicly traded or private. It can invest in real estate assets and/or mortgages, but it must be a passive investor; it cannot be deemed an active trade or business. REITs focus on high current yields and provide excellent liquidity because they trade on the national stock exchanges and in the over-the-counter market.

While real estate in general has attracted little new capital, the REIT market has sparked interest. According to the National Association of Investment Trusts, eight initial equity offerings totaling $808 million were completed in 1991. Although no initial REIT offering was completed in the first quarter of 1992, market analysts expect REIT offerings to be strong this year. The Taubman Company, Inc., a national shopping center developer and manager has filed a prospectus with the Securities and Exchange Commission for the Taubman Centers, Inc. This REIT will include 19 centers, 16 of which will be super-regional malls. General Growth also is considering a regional mall REIT, and the Oliver Carr Company in Washington, D.C. is considering a REIT composed of office building investments in the Washington, D.C., area.

FIGURE 3

REITs vs. Other Investments: Comparative Yield Analysis



Source: National Association of Real Estate Investment Trusts, Kenneth Leventhal & Company.

Response to new REIT offerings will provide excellent insights into the appetite of investors. The strong performance of REITs in 1991, as shown in Figure 3, and the anticipated strength of new IPOs, indicate that investors have not abandoned real estate but seek higher initial returns and place a premium on liquidity. The recent growth in REITs indicates that investors still like real estate and that liquidity reduces the confidence premium. While REIT market pricing must be adjusted for individual properties, the level of activity and the features of individual offerings provide insight into investor thinking.

Analysts need to adjust REIT yields for equity real estate. The pricing of REIT shares must consider restrictions that will preserve the trust's nontaxable status as a passive investment conduit. Because REITs typically are groups of properties that investors cannot differentiate by property, investors buy shares in a package and have little control. The yields likewise must reflect package pricing rather than the merits of individual properties.

Legal and underwriting fees generally are higher, in the range of 6% to 8% of publicly issued proceeds, vs. around 2% for a private sale. REITs focus on cash flow and limit the investor's ability to create or enhance value. Since REITs must distribute 95% of taxable income, they retain little of their earnings for growth or expanded developments. Therefore, sources of cash flow are limited to new issues, leverage and depreciation allowances. REITs also are considered passive investments; therefore, they cannot "flip" properties for profit or engage in active construction and development on an ongoing basis.

Conclusion

Changes in earnings are not influenced by changes in property values; rather changes in values are dependent on realized and anticipated changes in earnings. Unfortunately there is no shortcut to estimating appropriate yields in a market with very little transaction activity. The analyst must maximize use of available tools and base at least part of the valuation on whether the risk is fairly priced against the risk associated with other investment opportunities and fairly evaluated in terms of risk/reward relationships.

LINKAGES AMONG CAPITALIZATION RATES, DISCOUNT RATES AND REAL ESTATE CYCLES

Adjustments must be made in capitalization and discount rates to account for differences in the real estate cycle.

by David C. Ling
and Halbert C. Smith, CRE

The current real estate recession has created serious problems in the valuation of many income-producing properties. Appraisers and analysts have estimated market values of properties only to find that investors will not purchase the properties at those prices, or at any price that is acceptable to the seller. Property owners, particularly large institutions, have found themselves holding properties they would like to sell, but not at prices investors are willing to pay. Owners apparently are waiting for the market to return to more normal levels that will produce prices more consistent with replacement costs and their own investment.

While owners' reluctance to accept large losses may be understandable, the widely noted overvaluation of Resolution Trust Corporation (RTC) and other properties by appraisers and analysts during the early part of the real estate recession is not. We contend that this phenomenon results, at least in part, from analysts' failure to recognize the asymmetric effects of real estate cycles on risk-adjusted discount rates and capitalization rates. More specifically we argue that point estimates of future cash flows are less certain in overbuilt markets than in underbuilt markets, all else remaining the same. Thus, we believe that a given level of excess supply *adds* a larger amount to the required risk premium, and therefore to discount rates and capitalization rates, than a shortage of the same magnitude *subtracts* from the required risk premium.

Capitalization Rate Components

As real estate counselors we know that capitalization rates are comprised of two parts—a return on investment and recapture of investment capital. The portion of the capitalization rate that represents return on investment is an interest rate or yield (usually called the discount rate) which compensates investors for the use of their capital. This discount rate must be high enough to compete with yields from other capital and financial investments of similar quality and risk. Often the discount rate is viewed as a rate that combines a riskless rate and an increment to compensate for the expected variability of real estate cash flows. The riskless rate usually is assumed to be the contemporaneous rate available on a U.S. Government security of comparable maturity.[1]

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Halbert C. Smith, *CRE, is professor and chairman in the Department of Finance, Insurance, and Real Estate in the Graduate School of Busines at the University of Florida. He is a director of the Homer Hoyt Institute and was formerly chief economist for the Federal Home Loan Bank Board. He serves as a counselor to several business firms and governmental agencies.*

In discounted cash flow (DCF) analysis the discount rate is applied to projected (i.e., most likely) cash flows over a holding period. Accurate quantification of the risk component is crucial to the realistic valuation of a property. Whereas yields on government securities can be found quickly and easily, yields on real estate investments require judgments to be made about the comparability of a given investment alternative to other investments and about the effects of future events on the investment's cash flow stream. Sophisticated models have been formulated for identifying and measuring risk, e.g., the capital asset pricing model (CAPM) and the arbitrage pricing model (APM). However, these models do not foretell the future; they are limited by their use of historical data to make inferences about the appropriate size of the required risk premium. Moreover, the applicability of these standard finance models of risk quantification to real estate valuation has been questioned by numerous researchers, and, as a practical matter, it has been limited severely by the availability of reliable real estate return data. The counselor's or investor's judgment therefore must be applied to the direct quantification of risk or the application of the models for measuring risk.

The other component of the capitalization rate, recapture of capital, is a percentage that is added to the discount rate to reduce the amount that otherwise would be paid for an investment. This amount, when converted to an annual figure, is sufficient to repay the capital that has been invested over the asset's expected useful life or holding period. A sinking fund factor usually is used to represent capital recapture under the assumption that annualized amounts will accumulate at compound interest. Use of a recapture rate is based on an inflationless economy in which investment values decline over time.

When investment values, in nominal terms, are expected to increase over time, an annualized amount must be subtracted from the discount rate to form the capitalization rate. The amount subtracted from the discount rate may be termed the allowance for appreciation. Both situations are represented by the general capitalization rate formula for real estate:

$$R_o = y_o - \triangle_o a \qquad \text{Equation 1}$$

where:

R_o is the overall cap rate.

y_o is the discount rate (overall yield rate).

$\triangle_o$ the expected change in property value (which can be either positive or negative).

a is an annualizer (usually a SFF).

Put another way:

R_o is the required annual dividend rate on the property.

y_o is the required holding period return (expressed in annual terms).

The investor's required return during the holding period may be obtained from two sources: (1) the periodic dividend (i.e., net operating income); and (2) appreciation in the value of the real estate. If a larger portion of y_o will be obtained from capital appreciation, then a smaller portion of y_o must be provided in the form of current yield. Thus, for a given y_o, increases in expected capital appreciation decrease the required R_o.

Why Multiperiod Discount Rates Drive Capitalization Rates

With direct income capitalization, estimated first-year (or stabilized) net operating income of the subject property (NOI) is converted into an estimate of market value by dividing NOI by the appropriate capitalization rate (R_o). The appropriate capitalization rate in this exercise typically is abstracted from the market by calculating first-year NOI as a percentage of the selling price from recent transactions of properties thought to be comparable to the subject property. Note that the application of direct income capitalization does not require explicit estimates of cash inflows and outflows beyond the first year.

Unlike direct income capitalization DCF techniques require the investor, appraiser or counselor to make explicit projections of future cash flow. The cash inflows and outflows associated with the acquisition of an existing income property may be represented by the following expression:

Equation 2

$$V_o = \sum_{t=1}^{N} \frac{EGI_1 (1 + \pi_r + \delta_t)^{t-1}}{[1 + y_o]^t}$$

$$- OE_1 \sum_{t=1}^{N} \frac{(1 + \pi_o)^{t-1}}{[1 + y_o]^t} + \frac{P_N(1 - B)}{[1 + y_o]^N}$$

where:

V_0 is the estimated value of the subject property.

Effective gross income in the first year of operations, EGI_1, is expected to grow at the average annual nominal rate π_r.

π_r is the expected rate of general inflation in the economy adjusted downward for economic depreciation of the property.

δ_t is a rental adjustment factor intended to capture the effects of current supply and demand conditions in the market on future increases or decreases in *real* (i.e., inflation-adjusted) rental income.

OE_1 represents first-year operating expenses (primarily maintenance and property tax expenditures) that are assumed to increase at the annual rate of π_o.

The final term in Equation 2 represents the present value of the cash flow from the sale of the property at the end of the projected N-year holding period, at which time proportional selling costs equal to B will be incurred. P_N in Equation 2 is determined by dividing NOI in year N + 1 by the appropriate terminal (or going-out) capitalization rate. The mean or expected value of all future cash

flows is converted to present value by discounting at y_o, the required return for the holding period.

Although direct income capitalization does not require explicit estimates of cash flow streams beyond the first year, *implicit* estimates of future cash flows are reflected in the capitalization rates that have been abstracted from the market in the comparable sales analysis. This is because transaction prices in a competitive market reflect the investment valuations of willing buyers and sellers which, in turn, reflect *their* projections and assumptions about future cash flows. For example, more optimistic assessments of future EGI_t's and P_N's in a local market increase investment values and thus the prices investors are willing to pay per dollar of first-year NOI, all else remaining the same. In terms of Equation 2 V_o is a function of π_r; as expected inflation increases, V_o increases, thus decreasing abstracted capitalization rates.

It is important to recognize that in a competitive market y_o is exogenously determined; i.e., it is a function of the returns that are available from other capital and financial investments of similar risk. Given current competitively determined rental rates, transaction prices adjust to provide potential investors with a holding period return equal to y_o. Capitalization rates do not determine value; they *react* to changes in cash flow projections and/or changes in required returns on competing investment alternatives. This integration of real estate markets with other capital and financial asset markets can cause a variation in local real estate values and observed capitalization rates even in the absence of a change in current or projected supply and demand conditions. Said differently, values in a local real estate market may decline even if projected cash flow streams are unaltered, e.g., if yields on risky corporate bonds increase. The point is that y_o (in conjunction with rental income appreciation and other assumptions) determines V_o which, in turn, determines actual transaction prices and thus R_o.

Risk And Multiperiod Cash Flows

A multiperiod DCF approach to income property valuation is an application of mean/variance analysis, a standard approach to the incorporation of risk into the valuation of many financial assets. Mean/variance analysis presumes investors weigh the advantages of expected benefits from alternative courses of action against the disadvantages of particular risks. More specifically mean/variance analysis explicitly recognizes that the expected variability, as well as the expected amount, of future cash flows is fundamental to the determination of market values in a competitive market. Other things being equal, mean/variance investors presumably prefer assets with higher mean returns (given comparable levels of risk) and avoid assets with more volatile (less predictable) cash flows and returns.

This risk/return tradeoff in the context of DCF analysis requires analysts to plug their best guess of future cash flows, such as EGI_t and P_N , into Equation 2. If an analyst is uncertain about the point estimates of expected future cash flows, he should be penalized by using a higher discount rate than the one used with a similar but less risky property. In short an internally consistent application of DCF requires adjustments in the discount rate for properties perceived to be relatively risky; DCF should not incorporate overly conservative or worst-case cash flow forecasts.

It is important to note that risk is defined as the potential *variation* between actual future cash flows and projected cash flows used in calculating V_o in Equation 2. Thus, investments in existing income properties in overbuilt markets are not necessarily more risky just because their previous owners realized a holding period return that was less than expected at the time of acquisition. Potential purchasers care only about the relationship between their required return (y_o) and the return they expect to earn if they pay the asking price for the property. Investors do not shy away from overbuilt markets because current values are below construction costs. In fact their exogenously determined yield requirements may be partially responsible for the fact that properties are selling at discounts to replacement costs. Said differently, risk does not depend on the current *level* of rents or values; it is a function of the degree of certainty market participants place on their estimates of future cash flows.

Real Estate Cycles And Risk

Real estate cycles may be characterized as the periods during which the market moves from high demand for space, supply constraints and rent and price increases to low demand, perhaps excess supply and flat prices. At some point in the cycle new construction decreases, and it may come to a standstill if overbuilding occurs. Property values may fall below replacement costs. At some point exogenous factors may begin to stimulate the demand for space. For example, after a recovery in the general economy or the relocation of a large corporation to a local market, competitive rental rates and therefore prices may begin to rise, and the vacancy rate may decline. Entrepreneurs and builders may respond to the increase in rents and prices by beginning new construction.

A primary determinant of the pace of new construction in a local market is the relationship between current rental rates and required (or equilibrium) rental rates. The required level of effective rental income in the first year is the level that equates the net present value (NPV) of the income with zero for typical investors who employ a typical set of assumptions about future rental rates, operating expenses and resale values. This required first-year effective gross rent per dollar of investment serves as a hurdle rate for prospective developers and investors in income-producing properties. If current supply and demand conditions in the market are such that properties earn rents greater than the required minimum, then investors will add new construction to the existing stock in an attempt to capture these excess rents.

Put another way, prices or values in the asset market are multiples of the rental rates that have been competitively determined in the space market. If current rents exceed the required minimum, then market values will exceed construction costs (including the price of land and a fair profit for the developer), and developers will have an incentive to add to the existing stock. Ultimately the expansion of supply causes *real* rents (current rents less inflation) to decrease toward the required or equilibrium level.[2]

Thus, although inelastic in the short run, the supply of space is elastic (price responsive) over long time periods. Short-run equilibrium in the asset market requires only that the market clears; i.e., willing property sellers find willing buyers. However, long-run equilibrium in the asset market requires that market-clearing asset prices equal the costs of replacement less accrued depreciation.

If current rental rates are below the required minimum, as is the case in an overbuilt market, construction will be cut back until market rents rise to the required level. Only then will developers be able to recover construction costs from the sale of new properties and earn a rate of return comparable to the return on alternative investments of similar risk. Note that if the supply of space in a local market could be adjusted instantaneously to the current level of tenant demand (i.e., if the short-run supply of space were highly elastic), current rental rates would equal the minimum required, and properties would sell for their replacement costs less accrued depreciation. In effect real estate cycles would be eliminated if the supply of space were perfectly elastic. However, the supply of space and therefore current rental rates cannot adjust immediately to changing market conditions. Thus, a combination of: (1) reduced construction; (2) normal growth in demand for space; and (3) steady depreciation of the existing stock is required before higher real rents can be generated for income-producing properties in overbuilt markets.

In many applications of the multiperiod valuation model the rental adjustment factor in Equation 2, (δ_t) is equal to zero; i.e., effective gross rental income is expected to grow at the rate of expected general inflation minus the effects of economic depreciation. This pattern of projected rental income invokes the often unrealistic assumption that the local real estate market has obtained long-run equilibrium; i.e., market values are equal to construction costs, and current and expected rents are sufficient to provide investors with a competitive (risk-adjusted) rate of return. In effect projecting that rental income will increase at the rate of general inflation is akin to assuming that any recent upturns or downturns in the local market have played themselves out and that underbuilding or overbuilding will not occur in the future.

A Sample Property

To facilitate discussion of these concepts, consider the following example. The subject property is a newly constructed office building with 55,500 leasable square feet. The rate of general inflation (less economic depreciation) is 4% per year over the projected ten-year holding period (π_r = 0.04). Operating expenses are $180,000 in the first year and will grow at an annual rate of 5% (π_o = 0.05). The market value of the property at the end of any year is equal to NOI in the subsequent year capitalized at 9%. Selling expenses are 4% (B = 0.04). The projected stream of NOI, including the selling price net of expenses, is converted into an estimate of current market value using a 12% discount rate (y_o = 0.12). Replacement cost, including land and developer profit, is $11,721,700.

Using these assumptions, the analyst can calculate that first-year EGI of $1,200,000 (or $21.6 per square foot) is required to equate current market value with replacement costs of $11,721,700 when rental income grows at the rate of general inflation. As shown in Panel A of Figure 1, the slope of the line defined by points RR and B reflects nominal income growth of 4% per year. Suppose, however, that the local market is at or near the top of a cycle and EGI_1 is $1,440,000 or 20% above ($25.92 vs. $21.6) required rental rates. If EGI_t increases at 4% per year, then the amount of projected excess income over the ten-year holding period is represented by the area bounded by CR, A, B and RR, which has a present value of $2,790,000.

Is it reasonable for the investor or counselor to assume that increases in effective rental income will keep pace with inflation in this underbuilt market? Will the typical investor be willing to pay a $2,790,000 premium to acquire the property? The answer to these questions is clearly no. Participants recognize that the market is at or near the top of a cycle. Because current rents are above the minimum required rents, investors anticipate that builders will increase the new products they bring to the market. Increased new construction will reduce the excess supply of space over time. As supply increases relative to demand, lower effective rents will be generated for the existing stock. Market participants understand that this process will continue until effective rents fall to required levels. In fact if analysts expect, perhaps based on prior experience, that the market will continue to be cyclical, they may project that EGI_t eventually will fall below required levels.

How quickly will effective gross rents fall from current to required levels (or below)? The fall in real rents will occur as quickly as new construction can be added to the existing stock. Because effective rents will not fall instantaneously to required levels, existing properties in underbuilt markets will sell at a premium over reproduction costs. The magnitude of the premium will depend on how quickly investors *believe* rents will fall to equilibrium levels. The longer the expected adjustment period, the greater the present value of excess rental income and the greater the premium over reproduction costs. Investors' expectations should vary with the expected growth rate of the area and the extent of the initial disequilibrium. However, even in fast-growing,

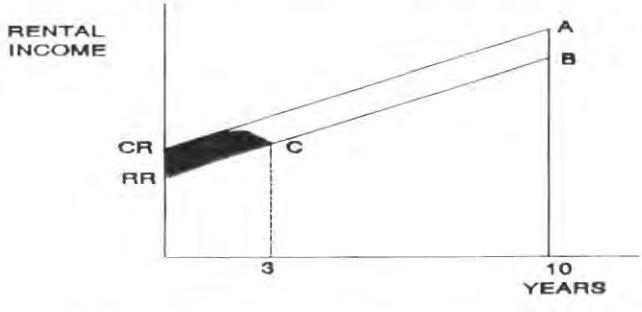
underbuilt markets, participants expect that supply eventually will catch up with demand and that real, though perhaps not nominal, decreases in effective rental income will occur; i.e., they expect that δ_t in Equation 2 will be negative for a period of years. The shaded area in Panel A reflects the excess rental income that will occur if the shortage is eliminated in three years and the real rents decrease gradually over that three-year period. In terms of Equation 2 the shaded area has a present value of $299,371 and assumes that δ_t is equal to -0.0954 in years two and three.

Panel B in Figure 1 depicts the situation if EGI_1 is $18.00 per square foot, or $1,000,000, i.e., 20% below the minimum required rental level. If EGI_t increases at 4% per year, then the amount of lost income from the excess supply of space is represented by the area bounded by RR, E, F and CR, which has a present value of $2,325,245.

FIGURE 1

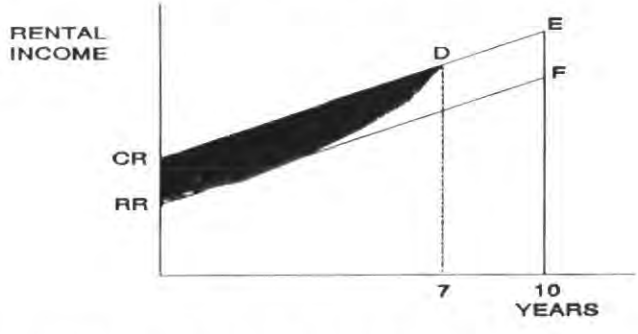
The Asymmetric Effects of Underbuilding and Overbuilding on the Value of Existing Properties

Panel A. Excess Rental Income in Underbuilt Market



Shaded area represents the amount of excess rental income due to the supply shortage that will be capitalized into the prices of existing properties. CR equals $1,440,000 for example property.

Panel B. Loss in Rental Income in Overbuilt Market



Shaded area represents the amount of lost rental income from the excess supply that will be capitalized into the prices of existing properties. CR = $1,000,000 for example property.

RR = Current effective gross income required for capitalized value of cash flows to equal construction costs (equal to 1,200,000 for example property)

CR = Actual first year effective gross income (EGI)

Because current rents are below the required minimum, builders will sharply reduce, if not totally eliminate, the new products they bring to the market. The combination of reduced new construction, growth in demand for space and steady depreciation of existing stock will reduce the excess supply of space over time. As supply falls relative to demand, higher effective rents will be generated for the existing stock. Market participants understand that this process will continue until effective rents catch up with required rents, because only then will developers have an incentive to bring new products to the market.

The rise in real rents will occur at the most rapid rate in fast-growing local markets with higher absorption rates, and the smaller the difference between current market and required rents, the sooner the asset market will obtain long-run equilibrium. Substantially overbuilt markets with slower economic growth may not allow any significant increases in real rents for a number of years, even if there is a near cessation of new construction.

Existing properties in overbuilt markets will sell at a discount to replacement costs; the magnitude of this discount will depend on how slowly investors think rents will rise toward equilibrium levels. Again investors' expectations should vary with both the expected growth rate of the area and the extent of the initial disequilibrium. The shaded area in Panel B reflects lost rental income over a seven-year recovery period, and it has a present value of $565,545.

Forecasting Rental Income

How should investors or analysts incorporate future changes in real rental income into their cash flow forecasts? First, they must make an assumption about the length of time the market will be over- or underbuilt. Second, they must forecast the *pattern* of real rent changes over the expected period of disequilibrium. In terms of Equation 2, the analyst must specify δ_t for each year of the expected holding period. We argue that these forecasts can be made with more certainty in an underbuilt market than in an overbuilt market.

When analysts project future rental income they must incorporate expected changes in the *demand* as well as the *supply* of space over time. We argue that the former is more difficult to predict than the latter. The argument is based on the assertion that the supply of space is more responsive to changes in price when markets are at or near the top of a cycle than when markets are bottoming out. More formally we argue that the supply of space in underbuilt markets is elastic (price responsive) because builders and investors quickly respond to rents that are excessive and prices that are above replacement costs by adding to the existing stock. For example, even large shortages of office space can be corrected in several years. Shortages of many other property types (e.g., multifamily space) can be corrected in an even shorter time period. Thus, in underbuilt

markets forecasted changes in real rental income (the δ_t's in Equation 2) are driven primarily by expected changes in supply.

An excess supply of space, however, is not eliminated as quickly, even if new construction in the market comes to a standstill. Absorption of the excess supply requires that demand for space increase over time. Demand for office, retail, industrial and multifamily space depends on numerous factors, many of which are largely independent of supply and demand conditions in the local real estate market. For example, the demand for office space in the local real estate market is affected by national and regional economic forces that are difficult to predict.

The shaded area of Panel A, Figure 1 depicts the time period required for new construction to drive current rents down to the required rent level. The larger shaded area in Panel B depicts the time period over which current rents will increase to the required level in an overbuilt market. The time period in Panel B is longer and more uncertain than the period depicted in Panel A because it depends almost completely on exogenous changes in demand. Speculative construction in the overbuilt market already has come to a stop; thus, changes in supply will be limited largely to demolitions.

We conclude, therefore, that a given level of excess capacity (say, 20%) adds a larger amount to the risk premium than a shortage of the same magnitude (20%) subtracts from the risk premium. Future rental flows are more difficult to predict in overbuilt markets because the rate of change in real rents will be driven primarily by hard-to-predict demand-side variables. This asymmetric effect may help explain the widely noted overvaluation of properties held by the RTC during the early part of the real estate recession when it was not unusual for properties to sell for prices 25% to 50% below appraised values. We believe that appraisers may not have added sufficiently high risk premiums to the discount rate to reflect the uncertainty of both: (1) the duration of the gap between required rents and current rents; and (2) the level of current rents over the forecast period. Rather it appears that appraisers applied risk premiums more reflective of stable or underbuilt markets. Discount rates were too low; capitalization rates also were too low, since they are driven by discount rates.

Summary And Conclusions

Our conclusions from the foregoing analysis may be summarized in four points:

1. When analysts use capitalization rates derived by comparison with competing real estate investments, they make implicit assumptions about the risk, timing and duration of the cash flows for the property they are analyzing. They assume that the market participants in comparable transactions are correct in their assessments of these characteristics. However, when properties are comparable in physical and transactional respects but the transactions occur in different phases of the real estate cycle, the indicated discount rates, capitalization rates and values will not accurately reflect the market.

2. Since the riskiness of investment in a given parcel or type of real estate varies over the real estate cycle, analysts must adjust the discount rate for use in the multiperiod DCF model. This adjustment is separate from any adjustment for the risk associated with general inflation in the economy. We have demonstrated that the discount rate adjustment can be annualized and included in the standard DCF model. By specifically including this adjustment analysts allow local market conditions to bear directly on the valuation of income-producing properties.

3. We conclude that the uncertainty associated with cash flow projections typically is greater during the overbuilt phase of the real estate cycle than during the underbuilt phase. The uncertainty is greater during the overbuilt phase of the cycle because the length of time required to rebalance the supply and demand for space in the local market is more uncertain. Market participants expect that space shortages will be eliminated quickly by profit-seeking builders and investors. Analysts, however, find it difficult to estimate the time of recovery for an overbuilt market. They must project demand-side responses to the overbuilding, because changes in supply will follow the removal of depreciated properties from the stock. The rate that excess space is absorbed depends on numerous factors, many of which are exogenous to the local market (e.g., national and regional economic factors). The adjustment to the rate should be estimated separately for each year of the cash flow forecast.

4. We suspect that some properties have been overvalued during the currently overbuilt phase of the real estate cycle for two reasons: First, in obtaining an overall rate appraisers have used comparable transactions that did not occur in the same phase of the cycle as the appraisal. Second, analysts did not adjust the discount rate in the multiperiod DCF model for the real estate cycle. We believe that further research is warranted to confirm and quantify the effects of the real estate cycle.

NOTES

1. Government securities are not, of course, riskless because realized real returns are affected by the level of general inflation. They are, however, free from default and prepayment (i.e., call) risk.

2. Discounted cash flow analyses contain estimates of future nominal cash flow. Even if basic demand and supply relationships in the local space market are not expected to change (i.e., the asset market has obtained long-run equilibrium), nominal cash flows may be expected to change over time simply as a result of general inflation in the economy. A decrease in real or inflation-adjusted rental income occurs when increases in nominal rents keep pace with general inflation. Real increases occur only when percentage changes in rental income exceed the general inflation rate.

NORMALIZED DISCOUNT RATES VERSUS RISK-ADJUSTED DISCOUNT RATES

Discount rates for rental properties are affected by levels of risk associated with the characteristics of tenants.

D. Richard Wincott, CRE

The way in which discount rates are selected as part of the appraisal process has been evolving as an issue for some time. Because the discount rate applied in a discounted cash flow (DCF) model actually is the prospective internal rate of return (IRR) for the investment that is being analyzed, questions arise concerning the appropriateness of making inferences from historical rates, such as: What is the current investor thinking regarding investment criteria? Should real estate discount rates move in sync with other indicated capital market yields?

Notwithstanding these issues, it is apparent that the discount rate now used in the majority of appraisal reports represents a proxy that has been obtained from some type of market sampling. This sampling takes various forms: published investor surveys, an average of buyer calculus assumptions from specific transactions and/or the perceived norm for the property type based on the conclusions of a particular appraiser's peer group for a particular month. Whatever their source, the rates inferred from market sampling represent "normalized discount rates" for a property type.

If the purchase of investment-grade real estate, particularly office and retail properties, essentially is an investment in a portfolio of leases, it is reasonable to assume that each property will be unique and that the risk inherent in each lease portfolio will cause rates of return to vary slightly. In essence, elements of risk used in the evaluation of multi-property portfolios also are appropriate to consider in the assessment of risk associated with individual properties. Measurements of the quantity, quality and durability of the income stream to be derived from a lease portfolio should be of significant concern to the appraiser. However, historic rent levels and occupancy rates often are the basis for the appraiser's projections, and these projections do not consider the character of the portfolio in its historic context as compared with current and expected levels of performance.

Property-specific analysis addresses what will be referred to herein as tenant risk. Several elements that influence the extent of tenant risk are inherent in each property or portfolio of leases. A number of these factors typically are addressed in modern portfolio theory in the context of other asset classes. Their application in an analysis of a real estate lease portfolio, in some instances, involves only an alteration of semantics; leases are investment contracts (securities?) that represent the

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tradeoff between the possession of space and a prescribed income flow.

Four basic areas that affect tenant risk deal with the quality, quantity and durability of the income stream: the diversification of tenants, creditworthiness of tenants, duration of lease terms and size of individual tenants. All of these areas reflect the fundamental risk that can be diversified away with appropriate managerial strategies.

Tenant Diversification

Different industries are affected in different ways by economic cycles. Service firms, such as those involving attorneys and accountants, may fare well during recessionary periods, while manufacturing or retail-oriented businesses may be adversely affected. While there is no definitive index with which to rate the effect of economic cycles on office tenancies in various industrial groupings, analysis of tenant mix in relation to competing properties or the economic base of a city provides insight into probable tenant movement upon lease expirations. The tenant mix by Standard Industrial Classification (SIC) codes forms a basis for this analysis.

Another issue pertaining to tenant mix concerns micro-market characteristics. Many communities typically have a concentration of legal firms in proximity to the courthouse complex. Likewise, office facilities in proximity to hospitals have a propensity to attract doctors, medical labs, etc., as tenants. The inherent risk of investing in buildings that cater to industrial groupings may be viewed in an entirely different light than the risk of investing in typical multi-tenanted, suburban office buildings. The determination of risk consequently requires adjustment to the normalized discount rates indicated by the market in general.

Credit Worthiness

A Fortune 500 company has a significantly different perceived financial stability than a real estate syndicate that has been in business for only one year. Therefore, the risk of default affects the required rates of return in the same way the bond rating system affects the capital market.

The risk inherent in an office lease portfolio dominated by a large credit tenant (e.g., Exxon) historically has had a direct impact on the required return reflected through the sale prices for those types of properties. Obviously, this is most evident in single tenanted buildings with long-term leases. The income portion of the investment return, in this situation, may be viewed as an investment in the company for the duration of the lease. Therefore, the risk inherent in that portion of the investment may be reflected through the company's bond rating. The overall discount rate then should prorate the difference between the risk inherent in the income to be derived from the lease agreement and the risk inherent in the property upon expiration of the lease or at the time of the property's resale. In fact, when a single, national credit tenant vacates and the building must be converted to a multi-tenant facility, a split discount rate may be utilized to reflect the systematic business and market risk exposure of a cash flow contract and the liquidity risk exposure of a real asset with higher capital requirements. This complex combination of risk factors may require the use of one rate to discount the assured income from the existing lease and a second rate to address the operation of the building after the large credit tenant vacates.

In a more traditionally tenanted building the mix of credit and non-credit tenants may be compared with the tenancy mix in other competing buildings. Variations from the normalized discount rate should be made by exception. That is, a premium should be applied to the subject property only if a major, nationally credit-rated tenant is atypical in a particular market. Likewise, an adjustment for a lease portfolio with a weak overall credit rating would be appropriate only if its characteristics differed significantly from those of competing buildings.

Retail properties have similar characteristics, but their characteristics have a more fundamental impact on risk analysis. Occupancy in retail properties, particularly community and regional shopping centers, typically involves national chain-type tenants. National retail chains, such as The Limited, Victoria's Secret, Foot Locker, etc., have distinctly different risk characteristics than local, "mom and pop"-type operations. The mix of national chain affiliates and local retailers affects the risk and, therefore, the required yield for a prospective investor. It is reasonable to assume that two community-type shopping centers of equal size in the same micro-market would require different discount rates depending on the character of their tenant mix.

The appropriate rate spreads in this instance may be gauged by comparing actual bond ratings for national chains with junk bond ratings. The normalized discount rate then may be adjusted based on a comparative proration of the tenant mix for comparable properties and the tenant mix for the subject property.

Lease Term

Lease expiration schedules within a building have a direct impact on the quantity of income to be derived from an investment. The valuation of a property following the DCF model generally uses two distinct elements to make the total present value estimate: the present value attributable to cash flow during the holding period and the present value of the net proceeds obtained from the eventual sale of the property. Obviously, the proration of value between these elements provides an insight into the risk of the investment. For example, a property that attributes 60% of its current value to the future sale price or asset appreciation would have greater risk than a property that attributes only 20% of the total present value to the return from the sale of the property.

Often ignored is the portion of present value attributable to the cash flows obtained during the holding period. A property with lease contracts that

will expire within three years of the time of purchase intuitively would be less desirable than a property with lease contracts that do not expire for seven or eight years. Therefore, the amount of "assured income," or the present value of the income to be derived from existing lease contracts, as a percentage of the value of the cash flow component, could be of greater importance with respect to risk than the proration of value between total cash flow and property appreciation.

The present value of the "assured income" is the only component of return on the property that can be quantified with any certainty. Lease rates upon renewal, percentage of tenant retention, downtime between leases, etc., may be inferred from market research, but they nonetheless are prospective estimates. Therefore, the greater the percentage of value that is attributed to assumptions regarding future market behavior the greater the likelihood that the value estimate will vary over time. As a result, it is reasonable to assume that the required yield would increase in accordance with the uncertainty of future returns.

This factor probably has the greatest impact on the appropriate discount rate, and it is the easiest to quantify. Elements specifically addressing this factor include the following:

- lease expiration schedule, including annual expirations as a percentage of the total building area;
- existing options to renew which may be at below-market rent levels;
- a schedule of contract rental income from existing lease agreements.

Adjustments to the normalized discount rate should be based on the relative differentials between the subject property and properties used as market comparables. This requirement places a burden on the appraiser to obtain a substantial amount of financial data during the sale confirmation process. The choice of comparable sales then becomes a matter of data quality rather than quantity. Three to five well-confirmed sales are far more valuable than 10 sales for which the data include only sale price per square foot and the going-in capitalization rate. In the analysis of investment-grade real estate, details of the lease structure and financial operation of comparable properties are essential.

Tenant Size

This particular comparative element may be construed as a double-edged sword in the analysis of office buildings. On one hand, a building that has a large tenant, such as Exxon, occupying a majority of its space may be viewed as a relatively low-risk investment by investors because the leasing risk is minimized, the management burden is reduced or the long-term presence of the tenant is assured by the enormous costs of relocation. Counter to this argument is the AT&T Building in New York, which must be retrofitted for multi-tenant use or face a prolonged period of vacancy while managers try to find another major corporation to occupy it. This situation demonstrates the high level of liquidity risk exposure in real estate that may override the business risk or operating risk represented in the traditional DCF model.

The submarket in which the property is located may dictate the extent of these concerns. Central business districts often find themselves lacking large blocs of contiguous space. Therefore, a building that is occupied mainly by smaller tenants may be at a disadvantage. Suburban markets may encounter the opposite problem. If typical tenants are small-space users, a building with a large-space user may have difficulty releasing when that tenant vacates.

The issue of tenant size takes on a different character with retail properties. Large-space users, typically known as anchor tenants, are focal points for shopping centers. Market research clearly has demonstrated that stabilized occupancy rates in anchored shopping centers are significantly higher than occupancy rates in non-anchored centers. While this factor may be addressed in the DCF model through the vacancy and credit loss assumption, it alters the perception of risk differential for the center as a whole in the mind of an investor. Anchor tenants are the principal destinations for most shoppers; the presence of an anchor tenant in a shopping center therefore is a consideration in the leasing decisions made by other tenants. The overall character of a retail center also is affected by the type of anchor tenant present. For example, centers anchored by a grocery store chain tend to attract drug stores, hardware stores and other tenants oriented toward weekly, repeat business. Department store-anchored centers tend to attract a slightly different type of tenant. Economic cycles affect various retail operations in different ways; therefore, the character of the tenant mix may affect an investor's perception of risk.

Capital Market Comparative Example

The following examples illustrate the risk-adjusted rate concept for real estate through a correlation with capital market risk-adjusted rates. The underlying basis for this example is the discussion of real estate and the bond market by James E. Gibbons, CRE.[1] He compares the definition of the risk rating for Baa bonds as set forth in Moody's Investor Survey and real estate characteristics. Moody's Investor Service, Inc., defines this rating as:

> Bonds which are rated Baa are considered medium-grade obligations, i.e., they are neither highly protected nor poorly secured. Interest payments and principal security appear adequate for the present, but certain protective elements may be lacking or may be characteristically unreliable over any great length of time. Such bonds lack outstanding investment characteristics and in fact have speculative characteristics as well.

When comparing Baa rates to yield rates for real estate, an additional adjustment must be made for the management burden and the liquidity risk. Management risk does not necessarily relate to the

management of the property itself but to the rate charged by fund managers to manage investment portfolios. The liquidity risk relates to the lack of daily trading in the real estate market and the effect of market conditions on prolonged marketing periods.

Using these parameters, a normalized discount rate may be defined as follows:

Current Baa bond rate (capital market base)	9.00%
Management burden	1.00%
Liquidity risk	2.50%
Normalized discount rate	12.50%

The normalized discount rate reflects property whose characteristics are typical for a particular marketplace. A property falls in this category if the characteristics of the tenant mix, average lease term, value distribution between the present value of the cash flow and the present value of the reversionary sale price, etc., match the assumptions utilized in the appraiser's DCF model. For the purposes of the example, let us assume the following normalized characteristics:

Average lease term	5 years	
Value distribution		
Present value of cash flow		60%
Assured contract income	50%	
Prospective income	10%	
Present value of reversion		40%
Total property value		100%

Example 1

This example details the impact of a substantial credit tenant on the discount rate. The tenant in question is a Fortune 500 company with a Aaa bond rating and a remaining lease term of five years. The present value of the contract income to be derived from this tenant represents approximately 75% of the assured income component of the property value. The current yield on five-year bonds for this company is 7.9%.

Capital market base		
Credit tenant		
Assured income component (.50 x .75)	37.5%	
Capital market yield	7.9%	
Weighted average		2.96%
Normalized value component		
Value component	62.5%	
Capital market yield (Baa)	9.0%	
Weighted average		5.63%
Management burden		1.00%
Liquidity risk		2.50%
Risk-adjusted discount rate		12.09%
	(rounded)	12.1%

Example 2

This example details the impact of a substantial tenant with questionable tenure on the discount rate. The tenant in question is a large accounting firm that must pay a court-directed liability judgment amounting to several times the net worth of the company. It has a remaining lease term of five years. The present value of the contract income to be derived from this tenant represents approximately 75% of the assured income component of the property value. For the capital market base, assume a junk bond rate of 11%.

Capital market base		
Questionable tenant		
Assured income component	37.5%	
Capital market yield	11.0%	
Weighted average		4.13%
Normalized value component		
Value component	62.5%	
Capital market yield (Baa)	9.0%	
Weighted average		5.63%
Management burden		1.00%
Liquidity risk		2.50%
Risk-adjusted discount rate		13.26%
	(rounded)	13.3%

In this particular example the additional 80 basis points above the normalized discount rate represent the possible risk of default. Despite the fact that the tenant has a remaining lease term of five years, not reflecting the additional increment of tenant risk by using the normalized, or typical discount rate for that property would be inappropriate.

Summary

Because of tenant risk factors, a normalized discount rate for a particular area or property type may not represent the risk inherent in a lease portfolio. For that reason, discount and capitalization rate selections based on investor surveys may be a valid starting point in the analysis, but use of a 12% discount rate for all office buildings or shopping centers in suburban Anytown, USA, is not appropriate.

Some elements of risk may be addressed directly in the various assumptions involving the DCF analysis; subsequent adjustment of the discount or capitalization rates therefore may be double counting. Nevertheless, certain elements of tenant risk cannot be specifically quantified in lease rollover assumptions, credit loss levels, etc., and should be reflected in rate adjustments. Risk assessment is typical in the analysis of other capital market investments (i.e., bonds). For real estate to be further integrated into the institutional investment portfolio, it is incumbent upon the analyst to explain market behavior in similar terms.

NOTE

1. James E. Gibbons, CRE: *Real Estate and the Money Markets*; (American Society of Real Estate Counselors, 1989) pp. 25-29.

INVESTOR SURVEYS AND THE DISCOUNT RATE

Are discount rates derived from surveys of real estate investors sensitive to changes in the economy and therefore valid and appropriate in real estate analysis of individual properties?

by Edmund Carroll

A number of rates and economic factors, as well as a review of the subject property's overall competitive position in the market, often are considered when establishing the discount rate for a specific real estate analysis. Investor surveys also serve as benchmarks for the discount rate or the expected rate of return for particular types of real property. A critical assumption in the use of investor surveys is that the expected rates of return in a survey are reliable and consistent. Despite the popularity of investor surveys, real estate appraisers or analysts should question whether the surveys they use are reliable: Do investors' expectations generally reflect reasonable returns in view of economic conditions? Are these expected rates sensitive to changes in the economy? How do other rates and economic variables relate to the discount rate?

Importance

The valuation of an income-producing asset can be measured as the present value of the anticipated future cash flow. This concept is the basis for the income approach to real estate analysis and valuation. The present value of a real estate asset is the sum of the present value of the anticipated cash flow over a projected period plus the present value of the residual value at the end of that period. The present value is derived by applying an appropriate discount rate to the income stream and residual.

The discount rate is defined in *The Dictionary of Real Estate Appraisal* as: "a rate of return commensurate with perceived risk used to convert future payments or receipts to a present value."[1] The discount rate often is synonymous with the internal rate of return, which is defined as: "the rate of discount that equates the present value of the benefits to the present value of the capital outlays."[2] These terms are used interchangeably with one another and the yield rate.

The importance of selecting an appropriate discount rate in real estate valuation cannot be overemphasized. An illustration applying various rates to a very large, hypothetical income stream underscores this point. The income stream of a ten-year projection period for a hypothetical or a net operating income in year one of $5,000,000 that grows by 4 percent thereafter is as follows:

Year	Cash Flow
1	$5,000,000
2	$5,200,000
3	$5,408,000
4	$5,624,320
5	$5,849,293
6	$6,083,265
7	$6,326,595
8	$6,579,659
9	$6,842,845
10	$7,116,559

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The 11th year's net income of $7,401,221 is used to derive the residual value of the property at the end of the projected period. Based on a 9% terminal capitalization rate and the exclusion of any capital or hypothetical sale costs, the residual value of the property is $82,235,794. The value of the property is the sum of the present value for each of these components.

The income stream represents the cash flow before debt service or income taxes have been paid. Since this valuation is for market value analysis, the determination of the discount rate intrinsically assumes typical financing and a typical marginal tax rate. If debt service and income taxes had been deducted, the required discount rate would reflect a typical after-tax equity yield rate.

To illustrate the disparity in value that results from using different discount rates, cash flows have been discounted at various rates taken from the fourth quarter of 1991. The rates have been six-month Treasury Bills, Moody's Baa-rated corporate bonds and the high and low discount rates for office buildings obtained from an investor survey published by Real Estate Research Corporation (RERC).[3]

The six-month Treasury Bill rate generally reflects the safe rate. The Moody's Baa corporate bond rate reflects an income stream that has features similar to those associated with a real estate income stream, i.e., periodic income and a return of capital at the end of a fairly long holding period. The discount rates obtained from an investor survey are useful, because they express the experience of market participants and reflect participants' required rates of return.

The four selected discount rates and their respective values are set forth below.

Index	Rate	Value
Six-month Treasury Bills	4.63%	$98,812,823
Moody's Baa corporate bonds	9.40%	$70,267,339
RERC office discount rate–low	11.00%	$65,153,666
RERC office discount rate–high	14.00%	$52,218,259

Clearly there is a substantial disparity in value depending upon the discount rate selected. Fortunately a real estate analyst is not usually faced with such a wide range of choices for a discount rate. Nonetheless, the spread of just three percentage points between the high and low of the RERC office discount rates leaves an uncomfortably large margin attributed to judgment. Hence, great care must be exercised to support the basis of the discount rate.

Alternative Methods

There are a number of methods for calculating the discount rate, including the weighted average cost of capital (WACC) and the capital asset pricing model (CAPM), both of which have their limitations. The weighted average cost of capital is similar to the band of investment technique in that the discount rate is developed by weighting the components of debt and equity. These methods require information on the typical equity yield or dividend rates, interest rates and the ratio of debt and equity. The equity yield or dividend rate must be commensurate with the risk of the asset, and its determination must address considerations that are similar to those important in the determination of an appropriate discount rate. In addition to a risk-free rate of return, the CAPM requires the beta of the asset and the expected rate of return of the market portfolio; the determination of both of these must address similar considerations. Hence, neither of these techniques lessens the degree of judgment that must be employed in determining a discount rate.

The discount rate also may be derived from the market. One method obtains the discount rate by using market-derived overall capitalization rates. An overall capitalization rate is defined as: "an income rate for a total real property interest that reflects the relationship between a single year's net operating income expectancy, or an annual average of several years' income expectancies, and total price or value, used to convert net operating income into an indication of overall property value."[4] The overall capitalization rate is calculated by dividing the net operating income by the property value.

In his article "The Capitalization Rate, the Discount Rate, and Inflation," David M. Bradley proves that the discount rate is equal to the overall capitalization rate plus appreciation.[5] Kelley D. Slay agrees with this theory in general; however, he asserts that this relationship in practice provides only an approximation.[6] Nonetheless, the validity of the technique is predicated on the ability to extract a defensible overall capitalization rate from the market, a difficult task given the often limited number of sales and the inability to procure consistent information on income and expenses to arrive at the net operating income.

Another market-derived technique involves extracting the discount rate from sales based on past income and expenses and the expected sales price. However, Robert C. Mason has indicated that: "the actual discount rate, or internal rate of return (IRR) cannot be calculated until the holding period is completed."[7] In addition to the details of each sale, this method relies on historical data from a period that may have little in common with current market conditions.

A somewhat different method is the built-up approach which selects a discount rate for a particular property through an analysis of each component of risk. Intuitively the discount rate should provide a premium over the safe rate that is commensurate with the risk of investing in the asset. As previously mentioned, Treasury Bills often are considered to reflect the safe rate because they are backed by the federal government and have a short duration. Nonetheless, Treasury Bills are exposed to purchasing power risk in that inflation can erode their real rate of return. Hence, the market assigns a nominal rate of return which includes an inflation premium.

Another risk to be considered is illiquidity. Real estate assets are immobile and lack an active trading market like that of organized securities markets such as the New York Stock Exchange. As a result, rates for real estate investments, unlike those for stocks or bonds, require a premium for illiquidity. A premium also is required for the burden of managing real assets, which usually are treated as expense items. Nonetheless, additional managerial responsibility is borne by the investor for long-term decisions and for selecting and overseeing the management team. Property owners are subject to an additional risk, particularly in real estate investments of large size, because diversification of a portfolio of real estate assets is much more difficult than maintenance of a portfolio of securities. Both real estate assets and securities also are subject to nondiversifiable market risk. In the case of real estate, there is the likelihood that tenants will default or will be difficult to replace. These factors clearly can affect the durability of the income stream.

Investor Surveys

In practice, a discount rate for a particular property is developed in comparison with yield rates that are sought by investors for a competitive investment. This method is similar to the built-up approach, which adds to the safe rate, a premium for the various risks of investing in real estate. However, this method adjusts the discount rate in accordance with the differences in risk for a particular real estate investment and for a similar property type.

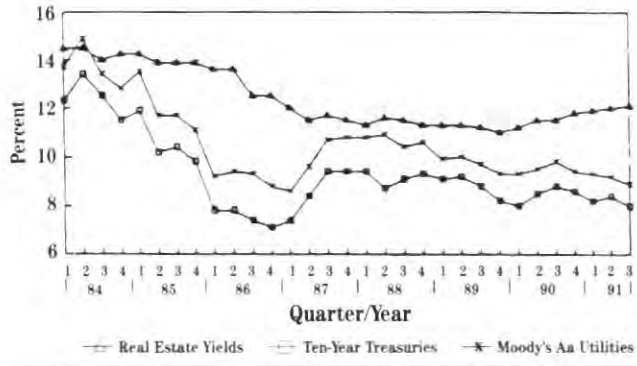
A number of reports available to real estate analysts provide benchmarks of returns. One such report is the *RERC Real Estate Report*, which is published quarterly by Real Estate Research Corporation. The report surveys respondents at the end of each quarter and lists the rates that reflect the respondents' desired returns for the coming quarter. RERC refers to these desired returns as the yield or internal rate of return. More specifically, according to their definition, these terms are the pre-tax equity yield rate. The yield or internal rate of return is defined by RERC as:

> ". . . the rate of interest that discounts the pre-income tax cash flows received by the equity investor(s) back to a present value that is exactly equal to the amount of the original equity investment. It is in effect a time-weighted average return on equity and, as used here, is synonymous with the term 'yield'."[8]

RERC reports typically discuss recent trends, the survey and its conclusions; compares rates and property preferences in the current quarter with those in previous quarters; explains terminology and methodology; and includes specific information from approximately 20 respondents to the survey. The respondents to the RERC survey generally are active market participants and include real estate investors, pension fund managers and investment advisors.

FIGURE 1

Comparison of Rates



Source: Real Estate Research Corporation.

Figure 1 presents the rates that appeared on the front page of RERC's 1991 third quarter report and

TABLE 1

Real Estate Investment Criteria by Property Type: 3rd-Quarter 1991*

		Retail		Office		
Rate	Industrial	Regional Centers	Community/ Neighborhood/ Power Centers	CBD	Suburban***	Apartment
Pre-tax yield (IRR)						
Range**	11.0–13.0%	11.0–13.0%	11.0–13.0%	12.0–13.0%	—	11.0–13.0%
Average	12.2	11.5	11.9	12.6	—	12.5
Going-in capitalization rate	9.4	7.6	9.4	8.7	—	8.8
Terminal capitalization rate	9.7	7.9	9.5	8.8	—	9.0

**This survey was conducted in June 1991 and reflects* desired returns *for third-quarter 1991 investments.*
***Ranges and other data reflect the central tendencies of respondents; high and low responses have been eliminated.*
****Insufficient data*
Source: Real Estate Research Corporation.

compares expected real estate yields with rates for ten-year Treasury Bills and Moody's Aa-rated corporate bonds between 1984 and 1991.[9] The figure shows some correlation between the Treasury Bill and bond rates and real estate yields, although it also clearly illustrates the great disparity between real estate yields and the other rates during 1986.

A summary of investor criteria is found in Table 1.[10] This table lists the pre-tax internal rate of return for six property types and includes the range and the average rate for each property type. The property types are industrial properties, regional retail centers, community retail centers, office buildings in the central business district (CBD), suburban office buildings and apartment buildings. As RERC stresses, the surveyed returns reflect: "yield expectations, or ex ante, rather than realized, or ex post, returns."[11]

The use of investor surveys to obtain benchmarks for the discount rate has mass appeal. The information in the surveys is timely, readily available and most important, it is derived from the market. It provides an accepted reference point real estate analysts may refine to determine a discount rate that is appropriate for a subject property's specific data and market conditions. Nonetheless, of concern are the reliability and validity of the information from investor surveys. Since the real estate market is dynamic, the information in investor surveys must be sensitive to changes in the economy. Because approximately 20 investors participate in the RERC survey, there is a reduced margin of error and general support for the validity of the information the survey reports. The following study further examines the sensitivity of investor surveys through statistical analysis.

Methodology

As a test of the sensitivity of investor surveys to changes in the economy, the discount rate was quantified in terms of a set of data that reflected other rates of return as well as indices that acted as barometers of market conditions. The 1989 to 1991 time period was surveyed and analyzed on a quarterly basis. The dependent variable was the discount rate, which was defined as the mean of the mean expected return for each property type in the RERC investor surveys. The independent variables were rates and indices for which a significantly correlated subset could be derived. Each of the variables in general reflected the rates that were in effect at the time or the annual change in the indices over the previous year that corresponded with the period

TABLE 2

Summary of Variables and Methodology

Variable	Mnemonic	Methodology of Data
Consumer Price Index	CPI	The change in the United States CPI-U for all items for the last month of the prior quarter over the corresponding month one year earlier
Moody's Aaa corporate bond index	MOODYAAA	The average rate during the last month of the prior quarter
Moody's Baa corporate bond index	MOODYBAA	The average rate during the last month of the prior quarter
Municipal bond index	MUNIBOND	The average rate during the last month of the prior quarter
Six-month Treasury Bill rate	TBILLS	The average rate during the last month of the prior quarter
Prime rate	PRIME	The rate at the beginning of each quarter
Discount rate	DISCRATE	The rate at the beginning of each quarter
Fed funds rate	FEDFUNDS	The average rate during the last month of the prior quarter
Residential mortgage rate	MORTRATE	The average rate for new homes during the last month of the prior quarter
Standard and Poor's 500 composite index	SPCHANGE	The change in the value of this index of 500 stocks at the end of the prior quarter over the corresponding period one year earlier
Standard and Poor's 500 composite yield rate	SPYIELD	The annualized quarterly dividend rate of this index of 500 stocks
Unemployment rate	UNEMPLOY	The unemployment rate for the nation in the first month of the current quarter
New construction	NEWCONST	The change in total new construction for the first month of the current quarter over the corresponding month one year earlier
Gross national product	GNPCHANG	The change in GNP for the prior quarter over the corresponding period one year earlier
Retail sales	RETSALES	The change in the total seasonally-adjusted national retail sales for the first month of the current quarter over the corresponding period one year earlier
Money supply	M1SUPPLY	The change in the money supply known as M1 for the last month of the prior quarter over the corresponding month one year earlier

TABLE 3

Summary of Data

OBS	Period	RERC Rate	CPI Rate	Moody AAA	Moody BAA	Muni Bond	6-Mo. T-Bills	Prime Rate	Disc Rate	Fed Funds	Mort Rate	S&P 500	S&P Yield	Unemp Rate	New Const	GNP Rate	Retail Sales	M1 Rate
1	4Q 1991	12.48	3.39	8.61	9.51	6.80	5.29	8.00	5.50	5.45	9.30	26.73	3.17	6.80	-5.80	2.57	0.20	5.87
2	3Q 1991	12.14	4.70	9.01	9.96	7.09	5.76	8.50	5.50	5.90	9.46	3.67	3.27	6.70	-10.64	2.82	1.79	5.78
3	2Q 1991	12.02	4.90	8.93	10.09	7.07	5.91	9.00	6.00	6.12	9.43	10.38	3.23	6.50	-10.47	3.29	1.48	4.76
4	1Q 1991	11.88	6.11	9.05	10.43	7.04	6.76	9.50	6.50	7.31	9.76	-6.56	3.66	6.10	-11.11	4.34	-2.12	4.01
5	4Q 1990	11.90	6.16	9.56	10.64	7.40	7.33	10.00	7.00	8.20	9.90	-12.34	3.87	5.60	-1.94	5.63	3.05	5.12
6	3Q 1990	11.52	4.67	9.26	10.22	7.22	7.64	10.00	7.00	8.29	10.13	12.59	3.26	5.40	2.79	5.52	3.29	4.80
7	2Q 1990	11.45	5.23	9.37	10.21	7.29	7.83	10.00	7.00	8.28	10.03	14.12	3.33	5.30	3.65	5.61	2.96	2.55
8	1Q 1990	11.25	4.65	8.86	9.82	7.01	7.45	10.50	7.00	8.45	10.07	27.25	3.13	5.20	2.12	5.87	5.52	0.77
9	4Q 1989	11.25	4.34	9.01	9.91	7.27	7.74	10.50	7.00	9.02	10.24	25.64	3.06	5.20	2.17	6.63	7.65	-0.38
10	3Q 1989	11.25	5.17	9.10	10.03	6.97	8.00	11.00	7.00	9.53	10.42	16.26	3.24	5.20	1.59	7.30	6.26	-0.28
11	2Q 1989	11.08	4.98	9.80	10.67	7.61	8.87	11.50	7.00	9.85	9.99	15.05	3.38	5.20	2.17	7.98	7.20	2.74
12	1Q 1989	11.23	4.42	9.57	10.65	7.66	8.24	10.50	7.00	8.76	9.39	12.39	3.50	5.40	6.54	7.76	7.76	4.68
High		12.4800	6.1600	9.8000	10.6700	7.6600	8.8700	11.5000	7.0000	9.8500	10.4200	27.2500	3.8700	6.8000	6.5400	7.9800	7.7600	5.8700
Low		11.0800	3.3900	8.6100	9.5100	6.8000	5.2900	8.0000	5.5000	5.4500	9.3000	-12.3400	3.0600	5.2000	-11.1100	2.5700	-2.1200	-0.3800
Mean		11.6208	4.8933	9.1775	10.1783	7.2025	7.2350	9.9167	6.6250	7.9300	9.8433	12.0983	3.3417	5.7167	-1.5775	5.4433	3.7550	3.3683
Std Dev		0.4482	0.7519	0.3430	0.3653	0.2588	1.0886	1.0188	0.6077	1.4350	0.3703	12.3466	0.2326	0.6293	6.2822	1.8562	3.1619	2.2651
C. V.		3.86%	15.37%	3.74%	3.59%	3.59%	15.05%	10.27%	9.17%	18.10%	3.76%	102.05%	6.96%	11.01%	-396.24%	34.10%	84.21%	67.25%

covered by the survey. The data predominantly reflected the information that was available to investors. The independent variables selected for analysis as well as the methodology employed in calculating them for each quarter are summarized in Table 2.

The Consumer Price Index (CPI) was used because of its effect on the real rate of return. As Bradley and Slay point out, there is a relationship between the overall capitalization rate and appreciation. Since the rate of appreciation can be altered by inflation, it follows that the inflation rate intrinsically affects the discount rate.

Moody's Aaa corporate bonds, Moody's Baa corporate bonds and the municipal bond index were included because they reflect rates of return on alternative investments, are cited typically in appraisal reports for the valuation of a property and have income streams that are similar to those of real estate assets.

The prime rate, the discount rate, the six-month Treasury Bill rate and the Fed funds rate were included because they also are cited in appraisal reports and are short-term money market rates. The rates for Fed funds were considered to be particularly significant, because these instruments are tools by which the Federal Reserve controls the money supply and the economy.

The residential mortgage rate was cited because it is a long-term rate that reflects the cost of financing the purchase of a home. Although commercial mortgage rates are more applicable to this subject, they were not as readily available. Nevertheless, the residential mortgage rate reflects the cost of debt, a factor that is incorporated into the WACC and band of investment models. Moreover, a change in mortgage rates often is believed to affect the discount rate, a natural conclusion when one relies on these models, although it may not necessarily be true.

The Standard and Poor's (S & P) 500 composite index and composite yield rate were cited to correlate real estate returns and stock yields. A real estate asset is somewhat similar to common stock in that there is periodic income, much the same as a dividend return on stock, and the possibility of capital appreciation upon resale.

The unemployment rate, the level of new construction, the gross national product, retail sales and the money supply (M1) were cited because they are indicators of the overall performance of the economy and have a direct bearing on market risks. For example, an increase in the unemployment level of employees in the finance, insurance and real estate (FIRE) sectors in the immediate area of a property adversely effect the demand for office space. As a result, vacancy levels may rise and rent levels may decline, reducing the level of the income stream and the value of the property.

The sample of the quarterly data developed for this study is summarized in Table 3. A cursory review of the sample suggests that some data is generally stable, while other data is volatile. Some data exhibits a clear pattern, although other data have no apparent trend. This table also presents statistics for each variable in the sample, i.e., the mean, the minimum and the maximum, the standard deviation and the coefficient of variation. These statistics further illustrate the magnitude and variability of the sample over the selected time period.

Several limitations in this analysis arose from the manner in which the data was incorporated into the model as well as the limited number of observations (12). Some rates or indices could have had more impact if they were used in an earlier or later time period as a leading or lagging indicator. However, there were numerous possibilities for the best fit of the data; to test all of the modeling choices would have been unrealistic. Only three years of data were used because the format of the RERC reports had

changed significantly and data from other periods would have been inconsistent.

A regression model was developed using the SAS statistical software package developed by SAS Institute, Inc.[12] A stepwise regression procedure was applied to select the optimum subset of independent variables. In this manner variable selection yielded: "the subset whose estimated equation produces the best fit, i.e., the subset whose estimated equation produces the minimum residual sum of squares or, equivalently, the maximum coefficient of determination, R2."[13]

The ability of the regression model to explain the discount rate was determined by the level of the R square. The stepwise procedure initially selected the variable that produced the highest R square. Additional variables were selected based on the one that produced the largest, statistically significant increase in the R square. The default for the level of significance was 0.15 for a variable to enter the model and 0.15 for a variable to stay in the optimum model.[14] A level of significance of 0.20 was chosen to make it easier for a variable to enter the model; 0.10 was selected so more significant variables would remain in the model.

Statistical Results

The stepwise procedure initially identified the prime rate as the most highly correlated variable because it had the high R square value of 0.9037. The equation used for this model was:

$$\text{RERC rate} = 15.77 - 0.42 \times \text{prime}$$

The F statistic, which is the ratio of the model mean square divided by the error mean square, tested the significance of the model and variables. The initial step of the stepwise procedure had an F value of 93.79 and a probability for a greater F value of 0.0001, indicating that the model was highly significant at a level of 99.99%. Results of statistical procedures for all four steps of the study are summarized in Table 4.

Individual variables were tested for their validity in the model. All variables were highly significant, although the significance of the prime rate declined to 0.1242. Because it no longer met the 0.15 default significance level, the prime rate was removed from the model. No other variable met the 0.20 significance level required for entry into the model. The final equation representing the optimum model was:

$$\text{RERC rate} = 12.79 - 0.40 \times \text{T-bills} + 0.52 \times \text{S \& P yield}$$

Neither variable had much impact on the discount rate, considering the magnitude of the parameter and the variable. The R square for this model was 0.9513, indicating that 95.13% of the variability of the discount rate could be explained by the model. The Treasury Bill rate and the S & P yield rate were tested with the F statistic and found to be highly significant.

Clearly the optimum model for the mean of the mean expected return for all property types in the RERC investor surveys was statistically significant. Nevertheless, the validity of the RERC investor survey was not intrinsically proven. The optimum model was represented only by the Treasury Bill rate and the S & P yield rate, although the prime rate was statistically significant at a level of 0.12. Moreover, the Treasury Bill rate, although small in magnitude, correlated negatively with the RERC rate, implying that as the Treasury Bill rate increased, the required return on real estate would decrease.

A review of the Pearson correlation coefficients indicated that all variables except the S & P yield rate, the unemployment rate and the money supply tended to correlate negatively with the discount rate. While this finding was paradoxical, it might be

TABLE 4

Summary of Stepwise Regression Procedure

Step	Description	Model R-Square	F-Value	Prob>F	Variable	Parameter Estimate	F-Value	Prob>F
1	Prime entered	0.9037	93.79	0.0001	Intercept	15.77	1343.03	0.0001
					Prime	−0.42	93.79	0.0001
2	SP yield entered	0.9438	75.55	0.0001	Intercept	14.54	595.54	0.0001
					Prime	−0.42	148.40	0.0001
					SP yield	0.39	6.43	0.0320
3	T-Bills entered	0.9644	72.32	0.0001	Intercept	13.61	424.18	0.0001
					SP yield	0.47	12.11	0.0083
					T-Bills	−0.23	4.64	0.0633
					Prime	−0.19	2.95	0.1242
4	Prime removed	0.9513	87.95	0.0001	Intercept	12.79	658.37	0.0001
					T-Bills	−0.40	172.77	0.0001
					SP yield	0.52	13.31	0.0053

explained by the small number of observations involved and the time period selected.

Conclusions

The rates and indices over the past three years yielded a number of interesting observations. Money rates, particularly of short duration, new construction, retail sales and the gross national product declined as the discount rate increased. Longer term rates, such as those for corporate bonds and mortgages, also declined but not in as pronounced a fashion. The money supply and the change in S & P's composite index had followed no apparent trend, while the dividend yield was generally flat. The unemployment rate increased.

The observed time period coincided with much of the downturn in the economy and current recession. The increase in the unemployment rate correlated positively with the discount rate, as one would expect. Also as expected, various economic indicators of the recession, including new construction, retail sales and the gross national product, declined as the discount rate increased. The net effect was that, as market conditions deteriorated, real estate was perceived to be a riskier investment. As a result, short-term rates were reduced, led by the actions of the Federal Reserve Board, to stimulate borrowing. Despite this strategy, real estate returns increased, causing a wider spread between these variables.

Hence, the negative correlation between the short-term market rates and the discount rate could be explained by market phenomena. The small magnitude of the short-term rates suggested that they did not significantly contribute to the discount rate, despite their statistical validity, particularly if the entire business cycle was considered. It was more likely that short-term rates functioned as leading indicators. Nonetheless, real estate returns were somewhat impervious to short-term money rates.

It was difficult to quantify the effect of real estate returns in terms of economic indicators and money rates amid such a complex and tumultuous period for several reasons. First, the significance level to either enter or remain in the model was very high; hence, variables that did not have a great individual impact might have been included in the model even though, in the aggregate, they were highly significant. For example, a contemporaneous increase in inflation and unemployment and a decline in retail sales and the gross national product might not be significant individually; in the aggregate, however, they indicated a recession. Furthermore, these conditions clearly had an impact on the durability of the income stream of a property. An increase in unemployment levels and a decline in retail sales directly affected the income stream of office buildings and regional malls, respectively.

Variables might not have been significant to the model because of multicollinearity between the variables selected. The short-term money rates correlated highly with one other, just as the longer term rates showed high correlation coefficients as a group. If the prime rate was not a variable, then Fed funds with an R square of 0.8815 would have been the first variable to enter the model. Other variables that had high individual R square values but did not enter the model were: unemployment (R = 0.8749), gross national product (R = 0.8678), the discount rate (R = 0.7510), retail sales (R = 0.6933) and new construction (R = 0.6476).

Nonetheless, a more persuasive argument for the absence of economic variables in the model was that the selection of the discount rate was *not* independent of the real estate analysis, i.e., economic indicators were reflected in the assumptions of the cash flow model as well as the discount rate. Specifically, the selection of market rent, vacancy rates, growth rates and absorption rates in the cash flow model reflected the current market conditions. For this reason, the impact of economic conditions on the discount rate was reduced greatly; however, the net effect on the property was still altered.

In summary a number of economic and money market variables correlated highly with the discount rate. These variables and others would have had more of an impact on the discount rate if the discount rate was not independent of the cash flow assumptions. Clearly the discount rates derived from investor surveys were sensitive to market conditions. Therefore, their use as benchmarks for an individual property's discount rate could be considered both valid and appropriate.

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THE WORLDWIDE REAPPRAISAL OF REAL ESTATE VALUES

Although the slump in the global economy—and the value of commercial property—will continue for at least another year, real estate markets in the United States and France will rebound, and equity capital for real estate will be available from Pacific nations.

by R. Thomas Powers, CRE

The 1980s produced the most profound collision of economic, political and financial forces ever experienced in the real estate industry. Many of those market forces have changed forever the way we think about real estate assets, especially the value of those assets.

Perhaps the most complex events affecting real estate markets are the degree and speed of globalization of the marketplace. Compounding these occurrences is the liquidity of the real estate capital markets. Because real estate markets have been so flush with "everyman's capital," industry professionals have taken little time to ferret out exactly what has been happening, why it has been happening and what the consequences will be. Indeed, only now have we begun thinking about the global aspects of our industry.

The 1990s are illuminating the sobering realities of the investment excesses of the '80s. Today we understand that real estate *finance* depends more than ever on access to global capital markets, but access to these markets is clouded by international factors that influence real estate demand, investment criteria and, hence, the values of real estate assets.

The 1990s also are demonstrating that the cash flow performance of a real estate asset, its value, remains basically local in nature. The reconciliation of these two diverging realities—global finance and local economic performance—sets the stage for our industry's most significant research opportunities.

This article seeks to advance one small step in the clarification of international factors that affect real estate values. It presents near-term economic forecasts for key industrialized countries, scrutinizes differences in property valuation procedures among those countries and hypothesizes about the geographic areas of the global marketplace that likely will provide the equity basis for real estate's next growth cycle.

Factors Impacting Property Values Internationally

Income capitalization, replacement costs and comparable sales were approximately equally weighted as methodologies applied to the determination of commercial property values in the 1980s. Today income capitalization is by far the preferred measure of value. This shift in focus returns our industry to its most fundamental basis and indicates that the creation or the loss of a local-area job will be the most decisive component of global property values in the

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1990s. The more local jobs are created, the faster excess space will fill up and the faster net operating income will grow. The antithesis of that scenario, i.e., that slow or nonexistent job growth will suppress the net income from a property, is most evident in today's market.

Our industry therefore must keep an eye on the local environment, trying to understand as much as possible about the forces that will attract growth to one market and cause another to lie dormant. Fortunately, there are a number of proven theories and research methodologies to assist us. Development excesses during the 80s were brought about by a lack of respect for the market, not a lack of knowledge about how to monitor and measure supply and demand.

However, our industry also must keep an investment eye on distant environments, researching, quantifying and applying an emerging set of global "laws" that affect investment criteria and value. Here, we are starting from a small base of knowledge with no real theory to rely upon. For example, we now must include diverse currency exchange policies in our interest rate forecasts. We must recognize that inflation has international components, many of which can be "exported" or "imported" across political borders. We must understand that one country's valuation criteria cannot necessarily be applied to another's property markets. We now must agree that asset price and value are not one-in-the-same.

The International Outlook

The world economy is mired in the most pronounced recession in a decade, and there is no clear idea how it will turn around. In the United States unemployment remains at high levels. In Japan and Germany a significant slowdown in growth in 1992 is a complete reversal of the countries' economic position in 1991 and their ability to help avert a global economic downturn. The bursting of the real estate bubble in Tokyo has sent the Nikkei Index into a tailspin. Unexpectedly high unification costs have caused Germany's budget deficit to balloon, raised inflation and forced the Bundesbank to raise interest rates. Because of Germany's dominant economic position in Europe, its high interest rates have precipitated an international currency crisis.

The continuing worldwide economic slump has a negative impact on real estate values and, hence, prices. Further, the gap between asset value and price is widening, if the investment returns from Canary Wharf and Rockefeller Plaza are any indication. Even low interest rates in some countries have been no panacea for the real estate industry. Relaxed monetary policy in the United States and Japan has had no more than a marginal effect on consumer spending and business investment. And neither the United States nor Japan can expect any further fiscal boost; the United States because of the trillion-dollar budget deficit, and Japan because of the actions of its Ministry of Finance.

All the factors that have depressed global consumer confidence and spending over the past two years remain in place. Real estate prices are still falling, and consumers and banks are still burdened with excessive debt. Relative interest rates apparently will remain stagnant for at least six more months, possibly longer.

Table 1 offers a snapshot economic outlook for key industrialized nations through 1993. It shows clearly that there is little on the horizon to suggest that the global economy will return to an '80s-type boom any time soon. Therefore, it is realistic to expect that commercial property *values* will continue to languish while property *prices* will experience ever-greater downward pressures. Continued uncertainty over the likelihood of an impending economic upturn will result in deflation of select property types and with it will come absorption and ultimately reduced asset prices.

Compounding sluggish and uncertain economic growth is the recognition that inflation will not be a savior, particularly within the real estate sector, this time around. And while the lack of inflation is good medicine in the long run, for now it merely

TABLE 1

The Economic Outlook for Select Industrialized Nations, 1991-1993

	Economic Growth (in percent)			Consumer Inflation (in percent)			Jobless Rate (in percent)		
Country	1991	1992	1993	1991	1992	1993	1991	1992	1993
UnitedStates	–0.7	1.6	2.4	4.2	3.1	3.0	6.8	7.3	6.9
Japan	4.5	2.2	3.0	3.3	2.2	2.5	2.1	2.1	2.3
Germany	1.2	2.0	2.4	3.5	3.8	4.0	3.8	6.5	6.3
France	1.2	1.8	2.1	1.8	3.1	3.0	9.6	10.0	9.7
Italy	1.0	1.6	1.9	1.6	6.4	7.0	10.9	10.8	10.9
Britain	–2.2	0.8	1.4	0.8	5.9	5.9	8.1	9.7	10.2
Canada	–1.5	2.3	2.5	5.6	1.7	3.0	10.3	10.0	10.1
Spain	2.8	2.9	3.3	6.0	6.0	6.5	5.1	6.1	5.5

Source: International Monetary Fund, 1991-1992; Takenaka & Company, 1993.

intensifies the pain by raising the level of real interest rates investors face. This is not to say that property prices will not rise without inflation; it does recognize, however, that some inflationary boost would do wonders to raise investors' expectations of yield trends.

Also contributing to continued economic stagnation are the poor prospects for employment growth within major countries. Between 1991 and 1992 unemployment increased in every country except Italy and Canada, and it remained level in Japan. World employment growth is forecast to remain sluggish over the next 18 months. And within that context neither real estate prices nor values can be expected to rebound.

A closer examination of Table 1 offers some insights, albeit subjective ones, into the likelihood of recovery for certain real estate markets. The failure to dampen inflation will hurt Italy and Britain, forcing up interest rates and depressing net equity capital formation. Unemployment will rise in Japan, Britain and Canada—net excess commercial space rarely is absorbed under such a scenario. However, the United States and France are positioned favorably on the inflationary front, and their job markets should improve; hence, it is fair to expect some uptick in the demand for commercial space in these two countries. Investor confidence in real estate, per se, also should begin to rebound. Right now real estate cannot compete with equities on either a risk or yield basis. This situation will change but only in conjunction with increased economic growth, price enhancement and improved consumer confidence.

Price Vs. Value In Real Estate

During the 1980s real property prices in most developed nations were well beyond their economic value. This circumstance was fueled by too much money, from throughout the world, chasing too few properties and causing more properties to come on line.

Other factors were at work as well. Among the more prominent was the application of the "theory of relative value." This "theory," empirically expressed, was one reason why the Japanese have significantly overpaid for many assets. The comparison of high office rents in Tokyo with relatively low rents in New York City led to the notion that rents were undervalued in New York. But as we now know, the theory of relative value holds only if an asset is portable and can be delivered into the higher-priced market at the lower basis. Clearly the purchase of a U.S. office building on the basis that it will be worth twice as much in Japan is ludicrous because one cannot move the building to Japan to take advantage of the lower relative basis.

A dramatic difference, or shift, in currency values between two countries is another component in the theory of relative value. As the value between currencies shift, there is an approximately equal and inverse shift in real asset values within the two countries. The fallacy of investing based on this logic should be evident by now.

The world's real estate market will find price-value equilibrium only when all investors accept the view that both price and value are computed off the cash (net operating income) a property generates, capitalized by an interest rate reflecting:

- risk;
- inflation; and
- the global economy.

Securitization: Leading The Way For Global Market Unificiation

If asset price and value are to merge again in the 1990s, and they certainly will, the mechanism that will best assist the process appears to be securitization. At the very least securitization will be an important piece of the value-unification process.

The term securitization is applied routinely to the formation of any security that has fragmented ownership and can be freely traded. In commercial real estate securities include everything from commercial paper backed by a letter of credit to real estate investment trusts and public master limited partnerships. While not a new concept, securitization is now reaching prominence. And it is doing so because it fulfills the growing needs of both borrowers and lenders/investors, regardless of nationality. From the standpoint of the borrower securitization provides the following advantages:

- broader access to capital;
- faster access to funds;
- greater flexibility, especially compared with a mortgage; and
- lower interest costs.

Securitization also has many benefits from the lenders/investors' point of view:

- increased liquidity;
- standardized rating process, which facilitates participation; and
- increased product creation, which enhances marketability.

There are large and growing numbers of real estate securities on today's market. The oldest is the mortgage-backed security; newer breeds include commercial mortgage securities, collateralized mortgage obligations (CMOs) and real estate investment mortgage conduits (REMICS). Even real estate investment trusts (REITs) are coming back into favor. The more rapidly global real estate securitization takes hold, the quicker the industry will close the gap between asset price and value.

A Worldwide Rethinking Of The Notion Of Value

Clearly a worldwide reappraisal regarding real estate values is underway. Vacant space, falling rents and even negative absorption are rampant. Once pro forma returns assumed a 5% vacancy rate; today a 15% assumption is closer to the norm. It is not unusual to find several well-known property valuers in disagreement about the value of an asset—several years ago this circumstance would have been

TABLE 2

Comparative Real Estate Valuation and Yield Criteria for Select Industrialized Countries, 1991

Criteria	United Kingdom	Japan	United States	Germany	Spain
Debt Coverage Ratio	1.1-1	— —	1.25-1	— —	1.25-1
L-T-V	<60%	70%	<75%	15-25% (of product cost)	65%
Yields					
Office	7.5%	2-4%	7-10%	4-5%	5.5-8%
Retail	9%	— —	7-9%	6.5-7.5%	— —
Industrial	7%	3-5%	5-6%	5%	9-11%
Value calculations	capitalize income, adjust for quality of lease structure and term of rent reviews	"Normal Price" is nexus of market sales, income stream; 75% of that value	Compare income stream capital, market sales and replacement	Gross Rent Method—capital market rent income cap rate follows a risk free investment	Similar to the U.S.

Sources: UK: Hillier Parker Research
Japan: Takenaka & Company
U.S.: Cushman Wakefield
Germany: Deutsche Centralbanken Kredit AG
Spain: Madrid Stock Exchange, Banco de Santandor

unheard of. And the underlying assumption that property values only rise has proven to be a myth.

Except for the land system in the United Kingdom, most of the world's major real estate markets (e.g., those of Japan, Germany and Spain) are not well understood by outside investors. And unfortunately, there is no one place to go to consult with a "how to" advisor.

This situation begs an answer to an intriguing question: Are properties being valued according to the same criteria among different countries and investor groups? The answer? A resounding no. Therein lies another fundamental problem that prevents global property markets from making a strong, united comeback. Further, without normalized rating techniques, securitization cannot happen, and the global investment community remains cold to our products.

Following is a brief status report on some of the key international property markets and a review of the asset valuation techniques used in different countries. Table 2 provides a snapshot of each country's valuation procedure and the comparative property yields among markets.

The United Kingdom

Bank lending to the property markets in the United Kingdom has all but dried up. British bankers place great emphasis on the quality of the lease structure, with most utilizing 25-year terms and requiring rent reviews every five years. The United Kingdom clearly needs to develop a meaningful market for securitized products which would allow financing to move outside the banking arena and into the international real estate capital markets.

The most negative feature facing developers and lenders in the United Kingdom is the "yield gap"—the difference between property yields and prevailing interest rates. Prime downtown commercial property yields between 5% and 6%; long-term yields on bonds approach 10%. Rents are so low that developers cannot finance the yield gap, making property sales and refinancing the only way to survive.

A commercial property in the United Kingdom is valued by capitalizing the income then adjusting for the quality of the leases and the term of rent reviews.

Japan

Real estate lending in Japan is done by financial institutions, but it is carried out in the form of corporate finance. This contrasts sharply with lending practices in North America and Europe, which focus heavily on the income generation of the property itself. Japanese lenders tend to rely on criteria involving the borrower's personal credibility, perceived understanding of real estate and corporate business strategy. Japanese lenders do not place significant merit on the asset or development opportunity in their investment decision; they assume the corporation will support the asset's performance.

The Japanese refer to the value of real estate as the "normal price." The normal price is the nexus of the borrower's credibility and comparable market sales multiplied by 75%. One may now begin to understand why the Japanese have made real estate investment mistakes.

Germany
Commercial property accounts for approximately 30% of all construction in Germany. Valuation of property relies most heavily on the gross rental method, which is based on the capitalization of net rental income. The capitalization rate follows the current "risk free" investment.

Large property funds finance new construction in Germany. One important fund is the open-end fund, which is initiated by banks to place shares through their branch network. A closed-end fund also exists. This fund offers substantial tax incentives; however, there is no regulated market for reselling the fund shares.

Insurance companies have a relatively large appetite for real estate, which consumes about 10% of their collective portfolio. And within Europe, Germany is by far the market of favor for other European investors. By the middle of 1991 foreign investment in German real estate was estimated to be DM13.6 billion. The Scandinavians had the largest share at DM4.9 billion; followed by the Dutch (DM3.8 billion) and the British with DM3.3 billion.

Spain
Real estate valuation in Spain is approached on a somewhat different basis than valuation conducted in European counterparts. For example, loan requests are treated on a case-by-case basis, and the most important determinants of future income are the quality of the future tenants and the lease conditions. As one "protection" for the lender, loan-to-value ratios fluctuate between 50% and 70%. Also, leasing is prominent in Spain, and if the tenant base is solid, a property may be purchased. Institutions often purchase property before it performs economically.

Outside of Germany, Spain has been the most significant beneficiary of the boom in European real estate investment. Spain has benefited by hosting the 1992 Olympics and by its expected role in the European Economic Community (EEC). Also, demand for new space has outstripped supply by a significant degree, keeping yields higher in Spain than in any other market in Europe.

Whither Real Estate's Equity Capital In The 1990s?

Many U.S. real estate professionals over the past two years have bemoaned the "credit crunch," the supposed lack of debt available to support product development. All the evidence I have refutes the existence of a credit crunch; however, evidence does point to an equity crisis within our industry. Most equity dollars invested in the 1980s have been written off; those dollars were the first to dissolve. Developers who expect to build a steady stream of products in the 1990s must find and latch onto a scare breed—the real estate equity investor. There will be relatively few equity investors from the United States; reducing our massive debt loads and rebuilding equity will be the name of the game here.

Europe will continue undergoing that extraordinarily expensive unification "game" in the '90s. Germany already is feeling the strain as interest rates rise significantly, along with unemployment. Equity-seekers should keep their eyes on the EEC's Second Banking Coordination Directive which takes effect on January 1, 1993 and provides a single European license to conduct banking business. The directive allows institutions that offer certain banking activities in its own country to undertake the same activities in every other European community without obtaining additional licensing. Still, real estate's capital markets hardly will be overrun with equity capital from Europe during the 1990s.

What is becoming increasingly clear is that the Pacific Rim will be the world's net provider of equity in the 1990s, whatever the investment type. True, Pacific countries are growing fast and have demands of their own, but also consider the following facts:

- In 1990 total Pacific Rim gross national product (GNP) was $1.63 trillion; by 2000 it will be be $5.01 trillion— rivaling that of the EEC and almost equaling that of the United States.
- Taiwan, Indonesia, Thailand and Hong Kong have earmarked over US$500 billion to spend for public works and capital improvements over the next *two* years. This is more than the United States and Europe plan to spend over the next *five* years.

For those with imagination and an eye for the future, better understanding of the world's economic engine in the 1990s will make a great deal of sense.

Global Real Estate Markets Are A Reality

The continued globalization of our real estate markets is a given. Although we know that many investment mistakes inevitably will be made, such is the price of education. We also know that many things must happen to have a truly global property investment market. For example, a thorough property-rating system must be developed. Fannie Mae led such an achievement in the U.S. housing markets, providing the basis for today's booming residential mortgage-backed security trading. While not simple, another system can be achieved for commercial property in the 1990s.

Investment in commercial property will be less speculative in the '90s. Lenders and investors will demand a higher level of due diligence, and they will invest only in those projects that can stand on demand, alone.

Equity capital for real estate will be in short supply, and those who supply equity will have the best investment opportunities to choose from. Expect a surge of both debt and equity funds to be forthcoming, with Southeast Asia leading the way.

Finally, if the market is to reach equilibrium and remain there, more owner-operators must find a way to participate in the investment opportunities of the '90s. It is doubtful that a group of passive investors purchasing ten hotel properties is what the market needs, unless the managing partner really understands that business.

Ready or not, globalization of the world's real estate financial market is here. When will it merge with the realities of the local marketplace? And when will the sum of such a merger receive the respect needed to properly value real estate products in the 1990s? These questions, and many more, merit our collective answers.

RATES OF RETURN ON HOTEL INVESTMENTS

Debt and equity return requirements must be determined to understand the overall return rate for hotel properties.

by Daniel H. Lesser, CRE and Karen E. Rubin, CRE

As real estate counselors who specialize in the lodging industry, we are continually asked: What are capitalization rates on hotels today? We have found this question increasingly difficult to answer over the past couple of years. This article is our attempt to explain why and to give the reader some insight into the development of rates of return for hotel properties. Because capitalization rates reflect investment return requirements, we begin with a brief overview of today's hotel industry and its perception by investors in the marketplace.

The U.S. Hotel Industry

Today's U.S. lodging industry is considered to be troubled for several sound reasons. Individual examples of financially troubled hotel properties exist in almost every market area. Pressures on the industry in the past couple of years have been exerted from all sides: the supply side, the demand side and what we call the balance sheet (i.e., the financial) side.

The Demand Side

Demand for hotel rooms is closely related to travel trends which have been relatively easy to track in this country and to understand during the past few decades. These trends reflect the emergence of air travel as an increasingly important form of domestic travel. There has been tremendous growth in passenger activity at most, if not all, major U.S. airports. Furthermore, there are more major airports, and those airports are bigger and busier than ever before. Nevertheless, they have not been able to handle the amount of air traffic that has been generated, and regional airports have had to play an increasingly important role in the nation's air travel system. The continuing troubles with the nation's airline industry, and the emergence of the airlines' "hub" system, also have helped to "spread" air traffic throughout the nation.

Although the increase in domestic air travel has, in general, increased demand for hotel room nights, air travel has made it easier to take shorter trips which reduces the need for an overnight hotel stay. A business trip from New York to Chicago once may have resulted in a one- to two-week hotel stay. The same trip may now last only one or two days,

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either completely eliminating the need for a hotel room or dramatically shortening the required length of stay in a hotel. Average lengths of stay for most commercial hotels are only one to three nights; so the typical commercial hotel's tenancy turns over faster. This trend in general, did not have a negative impact on the hotel industry in the 1970s and 1980s; however, because the overall increase in travel (and therefore the demand for hotel rooms) provided the ideal stop-gap.

During the late 1980s, the weakening of the U.S. dollar on the international currency markets also served to spur travel (and hotel room demand) in this country. The results of this particular influence were a double bonus: The weaker dollar made travel to the United States by international visitors extraordinarily economical, while the much-touted "globalization" of the nation's economy gave international visitors more and better reasons for traveling here (and international travelers came in droves). At the same time, travel by U.S. citizens to international destinations became increasingly expensive because of the weakened U.S. dollar; U.S. citizens therefore were encouraged to travel domestically.

The periodic outbreaks of international terrorism that characterized the mid- and late-1980s also stimulated domestic travel (and, demand for hotel rooms) by suppressing the desire for travel abroad. Combined with the nation's expanding employment base and generally favorable, Reagan-era economic conditions which increased both discretionary and non-discretionary travel, demand for hotel rooms was strong and growing in many of the nation's marketplaces during the second half of the 1980s.

Well, welcome to the 1990s. On a national level we are in or hovering around a recession that has cost many people their jobs. Employment is shrinking in many marketplaces. International tensions vis-a-vis the (former) Eastern Bloc nations have been relaxed substantially, causing the federal government to re-evaluate its financial commitment to the nation's defense industry. As a result, major defense industry plants and military bases are closing, and the local economies that had relied upon these major employers are suffering. Although our currency remains weak, the economies of many of the nations who supplied us with so many willing visitors during the 1980s also have weakened, and we had a war in 1991.

A single glance at the passenger activity statistics for our airports during late 1990 and early 1991 is sufficient to demonstrate the wholesale abandonment of much of this country's travel activities during the period. While the airfare wars of the summer of 1992 have stimulated travel (and demand for hotel rooms), the domestic airline industry still appears to be contracting, raising the prospect of less competitiveness in air fares. In short, things have changed, and, however temporary some of these factors may be, the hotel industry in many markets has been hurt.

The Supply Side

The hotel industry's widespread supply side problems are largely a legacy of the "two accelerators, no brake" development mentality of the 1980s. Prior to 1986's tax reform, hotel property did not have to be "economic" to yield desirable returns in the form of tax savings to investors. Remember when the hotel building itself was depreciable in less than 19 years and the furniture, fixtures and equipment were depreciable in five years? These features made hotels desirable, given the ability (now, of course, long-gone) to pass-through passive after-tax losses to offset active income. And remember, too, that there was (arguably) at least some pent-up demand for new properties after the recession and double-digit interest rates of the early 1980s.

Even after tax reform, however, new hotel development continued at an historically strong pace well into the late 1980s. The entrance of the Pacific Rim investor into the U.S. real estate market proved to be an incentive to new hotel development, particularly in markets of particular interest to this investor type (e.g., Southern California and Manhattan). In the late 1980s Pacific Rim investors were interested in hotel properties in particular, especially the high-end resort products. Enough sales of existing U.S. properties were made to this investor segment, at prices well above those their U.S. counterparts were willing or able to pay, to cause the hotel investment market to consider potentially new highs in values and new lows in capitalization rates, irrespective, at times, of whether the particular property was Pacific Rim-investor material.

In addition to the perceived economic benefits of hotel investment in the 1980s, we noted another, less quantifiable factor in the investment decisions being made at the time: For lack of a better term, we call this "the ego factor." We had first-hand exposure to "the ego factor" time and time again in the late 1980s, and we found it in places one ordinarily would not expect to look. We remember clearly the public company that wished to acquire a waterfront hotel property in the suburban Northeast with an offering price that was a good 25% to 30% above what we considered to be the property's market value. We could not understand why this transaction was being considered at this price, until we found out that the company's CEO had just purchased a rather large yacht and required a marina slip, one of the lesser amenities offered at this particular hotel property.

Then there was the case of the luxury-oriented hotel under construction in Southern California. The project had taken years to develop and was within six months of opening when the CEO of its public company owner/developer was ousted. The new CEO did not care for certain design elements that had been incorporated into the property from the original architecturals. Because the property was adjacent to the company's international headquarters, it was argued that the company's image could be damaged irretrievably unless the hotel had the proper ambiance. The result was an additional

year of construction and uncounted cost overruns for project redesign.

With all the talk of ten-year discounted cash flows, debt coverage ratios, terminal capitalization rates and the like, it was clear by the late 1980s that many individual people—powerful, successful people, in particular—just *liked* hotels, darn it. Perhaps influenced by the subconscious memories of those childhood Monopoly games, these people wanted to own one or two of them. If the economics of the particular deal did not make sense, wasn't it all for the long-term good of the company?

The Financial Side

Irrespective of the relationship between hotel room demand and hotel room supply in any particular market, even nominally successful hotels may be troubled properties today because of the ongoing scarcity of third-party financing. We are all aware of the crisis in our banking industry and the limited availability of institutional financing for most types of real estate. This has proven to be particularly problematic for hotels, however, because so many were constructed in the last 10 years and were financed with mortgages intended to be in place only for five or 10 years.

One response to the fluctuating interest rates and inflationary pressures in the 1970s was the balloon or bullet mortgage, a term that sounds somewhat antiquated today. Call them what you will, their maturity dates are here! There are far fewer lending institutions in this country than there were five and 10 years ago, and a fairly significant percentage of them have been "burned" on hotel deals as a result of hotel room supply and demand factors. Let us not forget to acknowledge the historical overleveraging of hotel properties during the development fever of the 1980s. A 75% loan-to-value ratio and a debt coverage ratio of 1.25 seemed conservative enough in 1985. Problems occurred only when supply and demand factors forced declines in value of 40% to 50%, leaving the first mortgagee either in the midst of a hostile foreclosure action or in possession of an asset whose value did not come close to the mortgage value on the books.

The lending community in this country therefore is largely uninterested in financing hotels. Although there have been several exceptions, they are hard to find. Domestic lenders active in the hotel market are, in general, the sellers of properties obtained through foreclosure actions. Interestingly enough, we still hear about a fair amount of interest in hotel properties from equity investors and their ilk. The problem is that, of all the equity investors who express their interest in a hotel deal, few can come to the table with financing in place.

Nonetheless, hotel sales are occurring. The Hotel & Motel Brokers of America (HMBA) reported 170 hotel sales in 1991, a 72% increase over 1990's total of 99 property sales and the second-largest number in the organization's 33-year history. Strongly influencing the increase in hotel transactions was the opening, in mid-1990, of the Resolution Trust Corporation (RTC) pipeline of properties. According to the HMBA, the RTC had approximately 155 hotels in its portfolio in January 1991 and 109 hotels (46 of which were under agreement) as of January, 1992. Thus, most transfers of hotels are related to foreclosed properties with troubled financial histories. So we note that the 1991 sales reported by the HMBA featured an average per-room price of $18,400, roughly 15% below the average reported per-room selling price in 1990.

This environment has made it difficult to talk about capitalization rates and return requirements for hotels. How can we look to the market to get a handle on capitalization rates when the market of consummated sales consists largely of sellers who were under duress or of properties that were sold out of foreclosure or of transactions that *were* foreclosures and not arm's-length sales? How can we look to the market to provide information on capitalization rates when most hotel owners are only would-be sellers who, if they have any financial wherewithal, would hold onto their properties until they could consummate a deal in their best interest? Well, here is what we are doing.

Rates Of Return

We have noticed over the years that the real estate market in general and the hotel real estate market in particular is not efficient. When real estate is compared to, say, the stock exchange, we wonder: Where is the up-to-the-minute information on price/earnings ratios? Across whose computer terminal does the most recent sales price of a particular property flash? What daily newspaper prints lists of the latest prices for real property and the indicated capitalization rates? And, finally, what exactly *is* this animal that we all agree exists and that we call a capitalization rate?

This last problem is particularly significant because there are so many kinds of capitalization rates and no consensus within either the real estate industry or the hotel real estate industry on the kind of capitalization rate that should be used. Obviously, the intention of any capitalization rate is to reflect the relationship between a property's value (or price) and its income. However, there are many ways of expressing this relationship. So, when we are asked about capitalization rates for hotels, our first question is: What rate are you talking about?

An investor may formulate a capitalization rate that can be applied to a myriad of net income levels. For example, direct capitalization rates can be developed based on historical net income, forecasted first year net income or forecasted stabilized net income deflated to current dollars. To add to the confusion, some investors may capitalize different levels of net income, including: before or after a reserve for replacement for furnishings, fixtures and equipment; before or after an incentive management fee; or any combination of the reserve for replacement and incentive management fee.

The same confusion arises when discount rates are discussed. The term discount rate is equivalent

to yield or internal rate of return (IRR). Some investors segment their analysis of returns between debt and equity yields over an assumed holding period. Other investors focus on the total property yield or the unleveraged return. Again, a discounted cash flow investment analysis can be predicated on a multitude of net income levels.

At bottom we define a capitalization rate as a rate of return that an investment entity seeks when purchasing real estate. For example, if an income-producing piece of real estate is forcasted to generate $1,000,000 in cash flow and an investment entity wants to earn a 10% return, then the purchase price must be $10,000,000. To establish an appropriate rate of return, an investor must consider the risk inherent in the investment and the returns that may be achieved by alternative investments. Although risk is easily identifiable, it is relatively ambiguous and extremely difficult to quantify. Therefore, we believe that the preferred method for quantifying capitalization rates involves the realization that a capitalization rate is merely the weighted cost of the capital utilized to acquire an investment.

As previously alluded to, hotel real estate transactions, like most real estate transactions, typically involve a capital structure that includes debt and equity funds. Although there is a notable scarcity of available third-party debt funding insofar as hotels are concerned, we find that the great majority of transactions are being financed. And reliable sources tell us that mortgages are being put in place on hotel deals.

Debt Return Requirements

One source of reliable hotel mortgage data is the American Council of Life Insurance (ACLI). The ACLI's *Investment Bulletin* surveys commercial mortgage commitments quarterly and publishes the results by property type. For most of 1990, 1991 and 1992 the companies reporting to this survey accounted for roughly two-thirds of commercial mortgages held by U.S. life insurance companies; thus, this data to a very large extent comes directly from "the horse's mouth." Although many recent quarters have had insufficient data on hotel and motel loans specifically, published data for 1991 encompassed a total of 41 hotel/motel loans representing over $165 million in commitments. Table 1 shows the relevant information by quarter for 1991.

As one would expect, the contract interest rates for hotel and motel mortgages substantially exceeded that reported for other property types. Full-year 1991 ACLI data indicates that the average hotel/motel contract interest rate for all types of mortgages (including fixed rate-fixed term, participation, joint venture and other special features) was 104 basis points above the average contract mortgage interest rate on industrial properties (for which a total of over $876 million had been reported as committed), 96 basis points above the average contract interest rate for office buildings (for which over $1.4 billion was reported committed) and 78 basis points above the average contract interest rate reported for apartments (for which over $6.2 billion was reported as committed). Obviously, the relatively low amount committed on hotels and motels, combined with the higher interest rates, tells the real story about the current desirability of financing these types of properties. Nonetheless, the ACLI provides hard data that clearly indicates return requirements for the debt component of the capitalization rate.

Another source of published data on hotel mortgages is the previously mentioned Hotel and Motel Brokers of America (HMBA). The HMBA recently

TABLE 1

Hotel/Motel Mortgage Interest Rates-1991 (by Quarter)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total 1991
Fixed rate/fixed term					
No. of loans	1	N/A	5	30	39
Amount committed (+000)	$4,890	$25,980	$29,814	$91,995	$152,679
Contract interest rate	*	10.75%	10.03%	10.49%	10.51%
Other special features					
No. of loans	—	—	1	1	2
Amount committed (+000)	—	—	*	$9,400	$12,426
Contract interest rate	—	—	*	*	*
Total					
No. of loans	1	N/A	6	31	41
Amount committed (+000)	$4,890	$25,980	$32,840	$101,395	$165,105
Contract interest rate	*	10.75%	10.00%	10.40%	10.44%

**Data not shown for limited number of loans.*
Source: American Council of Life Insurance.

developed a new publication, called *Transactions by HMBA*, which lists many types of financial criteria relative to hotel sales. For 1991 the HMBA's average listed first mortgage loan-to-value ratio was 73.7% at an average interest rate of 9.8%, an average amortization period of 21.5 years and an average term of 12.5 years.

Another way we are able to quantify return requirements for hotel debt is by looking at individual deals as they occur as well as the terms offered by sellers who provide financing for hotels. We have listed some of what we have seen as follows:

- At a major auction held at the end of 1991, the Federal Deposit Insurance Corporation (FDIC) offered purchase money mortgages for first mortgages on hotels up to a 75% loan-to-value (or loan-to-price) ratio. Interest rates ranged from 150 to 200 basis points over seven-year Treasury notes (between 8.35% and 8.85%); amortization schedules were based on 30 years, and mortgage terms were seven years. This was non-recourse, non-assumable debt with a 1.25% origination fee. Other terms included a prepayment penalty of 3% during the first three years, 2% during years four and five and none for years six and seven.
- Third-party financing was placed on a midwestern airport hotel by an Asian lender at the end of the third quarter 1991. A first mortgage in the $10 to $15 million range reflected the full purchase price of the property (i.e., a loan-to-value ratio of 100%). The terms were interest-only at 250 basis points over prime (about 9% as of March, 1992). The mortgage probably was intended as some sort of bridge financing because its original term was only 1.5 years (not to mention interest-only). However, by January the term had been extended to six years with a 30-year amortization schedule. And lest this deal sounds too good to be true, be advised: A total of close to $8 million was either guaranteed or pledged by the borrower in the form of a security interest in other non-realty assets, and the borrowing entity included the property's management.
- Another third-party financing was provided by the same Asian lender in early 1992. The property was a standard-class (chain-affiliated) hotel in another midwestern market. This deal was for a non-recourse first mortgage in the $5 to $10 million range at a 75.5% loan-to-value ratio. The interest rate was 300 basis points over prime; the term of the loan was five years, interest only for the first two and a 25-year amortization schedule thereafter.
- In late 1991 a quasi-governmental arm of the RTC took back a purchase money mortgage on a standard-class (chain-affiliated) hotel in a relatively depressed area of the Northeast. The loan-to-value ratio was 70%, with interest at 200 basis points over prime. The mortgage was in the $5 to $10 million range. We were unable to ascertain the amortization schedule with exactitude but estimate that it was based on a 30-year schedule; the term of the loan was seven years.
- A major U.S. insurance company took back a purchase money mortgage on a first-class, chain-affiliated (franchised) hotel in the South at the end of 1990. The mortgage amount was in the $15 to $20 million range, and there was a commitment for a $5 to $7 million second mortgage from an Asian lender. The term of the first mortgage was for five years; fixed interest was set at increasing rates during the term, starting at 7.5% and escalating to 9.5%. We were unable to ascertain the amortization schedule.
- Another major U.S. insurance company took back a purchase money mortgage on a mixed-use (hotel and office) asset in Texas in the third quarter of 1991. Interestingly, the hotel was not a chain-affiliated property. The loan was in the $5 to $10 million range, but a letter of credit for over $1 million was provided as additional security. The loan-to-value ratio was a little over 71%, with a fixed interest rate of 10%, a seven-year term and a 25-year amortization schedule.
- In the fourth quarter of 1991 a European lender took a first mortgage on a small, independent Manhattan hotel property. This was a takeout of previous financing; so the property did not sell, but the stated loan-to-value ratio was 60% of appraised value. The loan was in the $30 to $50 million range, with interest at 150 basis points over LIBOR. We were unable to ascertain either the term or the amortization schedule on the loan.
- In the fourth quarter of 1991 an Asian lender provided third-party, first-mortgage financing on a package of seven domestic hotels (roughly 1,300 rooms). The mortgage amount was in the $30 to $50 million range at a stated loan-to-value ratio of 65%. The interest rate was LIBOR plus 190 basis points, with a seven-year term and a 28-year amortization schedule. This was a takeout of an original note held by another lender.
- A domestic savings and loan provided a first mortgage on a budget hotel in Texas during the first quarter of 1992. The loan was in the $1 to $5 million range, with interest at 100 basis points over prime. The loan-to-value ratio was estimated at 40% based on a first-half of 1991 sale price plus an estimated $1 million in renovation costs. The term of the loan was seven years, with a 30-year amortization schedule.

From the deals we have seen consummated and from published data, we believe that required returns for the debt portion of a hotel investment are identifiable at this point in time, despite the scarcity of third-party financing for hotels. Our conclusions are that loan-to-value ratios in the 40% to 75% range generally reflect the market, such as it is, with fixed interest rates in the 9.5% to 10.5% range. Although floating interest rates begin at levels that are materially lower, there is no way of knowing how they will end up. We see, in general, amortization schedules of 25 to 30 years and loan maturities of five to 10 years. While some third-party financing appears to be coming from Asian and European lenders, some domestic lenders are providing

financing in the form of purchase money mortgages. Although loan-to-value ratios are down from the 75% and above levels that were standard in the late 1980s, debt is still a significant portion of a capitalization rate and can be well supported. However, because equity return requirements are supposed to reflect investor expectations rather than documented interest rates, they are more difficult to quantify accurately.

Equity Return Requirements

The portion of the hotel investment that is not funded by debt in the form of a first mortgage typically comes from an equity investor. The rate of return that an equity investor expects over a ten-year holding period is known as equity yield. Unlike the equity dividend, which is a short-term rate of return, an equity yield specifically considers a long-term holding period (generally 10 years), annual inflation-adjusted cash flows, property appreciation, mortgage amortization and proceeds from a sale at the end of the holding period.

It is difficult to quantify the rate of return required by equity investors who seek to purchase hotel properties. To establish an appropriate equity yield rate, a hotel analyst may consult several sources of data. First, one may analyze recent sales transactions and extract rates based on historical and forecasted net income figures. Second, one may refer to numerous published sources of data. Finally, one may determine anticipated yield rates through investor interviews.

Analysis Of Recent Sales Transactions

During each year our firm appraises more than 400 hotels, including properties located in most major national markets. Most of these appraisals utilize a mortgage-equity approach in which income is projected and then discounted to a current value at rates reflecting the cost of debt and equity capital. In the case of hotels that were sold subsequent to our valuations we are able to determine an appropriate equity yield rate by excluding incentive management fees from the projection of income and expense,

TABLE 2

Sample of Hotels Sold

Hotel Type	Location	Year of Sale	Sale Price per Room	Overall Rate *	Total Property Yield	Equity Yield
Midscale	Binghamton, NY	1985	$ 52,200	10.4%	14.6%	20.3%
Luxury	Beverly Hills, CA	1987	265,957	14.9	19.7	32.0
Luxury	Carlsbad, CA	1987	518,672	7.9	8.7	5.6
Midscale	Boston, MA	1988	52,065	10.8	15.3	21.8
Luxury	Boston, MA	1988	141,058	10.1	13.2	17.7
First Class	Chicago, IL	1988	124,734	9.0	12.3	16.5
First Class	Denver, CO	1988	51,440	11.9	14.3	19.4
Midscale	Kingston, NY	1988	61,782	10.7	14.8	22.9
Midscale	Milford, CT	1988	60,185	10.8	14.3	20.0
Midscale	Philadelphia, PA	1988	48,971	9.8	14.5	21.5
Midscale	San Francisco, CA	1988	43,702	8.7	10.5	12.8
Midscale	San Francisco, CA	1988	56,034	12.2	17.3	28.9
First Class	Wilmington, DE	1988	88,601	14.1	19.9	34.5
First Class	Annapolis, MD	1989	121,212	15.5	17.6	31.4
First Class	Boston, MA	1989	102,374	12.0	16.0	25.2
Midscale	Concord, CA	1989	60,060	16.5	20.2	35.5
Midscale	Corning, NY	1989	34,483	14.5	20.9	37.1
Luxury	Los Angeles, CA	1989	226,667	14.7	19.5	36.2
First Class	Mission Valley, CA	1989	133,974	11.4	16.0	24.6
First Class	New Orleans, LA	1989	97,065	11.9	17.1	28.9
Luxury	San Francisco, CA	1989	228,856	10.3	15.7	19.7
Midscale	Walnut Creek, CA	1989	49,240	12.1	15.0	20.3
First Class	Buckhead, GA	1990	74,124	10.2	3.8	19.6
Economy	Easton, MD	1990	27,500	14.5	21.2	38.4
Midscale	Foster City, CA	1990	75,210	8.5	9.8	8.4
First Class	Newport Beach, CA	1990	88,757	12.0	17.0	28.0
Luxury	Palm Springs, CA	1990	191,163	14.0	19.6	33.7
First Class	San Francisco, CA	1990	105,263	10.1	14.7	22.5
Economy	Bridgeton, MO	1991	14,212	15.7	16.1	20.4
Midscale	Bretton Woods, NH	1991	20,064	31.7%	22.7%	27.6%

**Direct capitalization rate based on stabilized year deflated to current dollars.*
Source: Hospitality Valuation Services.

inserting the projection into a valuation model and adjusting the appraised value to reflect the actual sale price by modifying the return assumptions. Table 2 presents a representative sample of hotels that were sold shortly after we appraised them, along with the imputed total property and equity returns based on our valuation approach.

It should be noted that the rates of return cited in Table 2 assume a specific type of financial structure and may not represent the actual expectations of these buyers. The table illustrates, however, the levels of returns a typical investor may expect when acquiring one of these hotels.

Published Sources

Numerous real estate firms and organizations publish newsletters and summaries of investor surveys and hotel real estate sales. A review of some of the more recent newsletters from these firms illustrates that anticipated total property yield rates (Yo) employed by hotel investors in their analysis range from 12.0% to 18.5%. Anticipated equity yield rates (Ye) range from 15.0% to 28.0%. Going-in capitalization rates range from 10.0% to 14.0%, and terminal capitalization rates range from 9.0% to 14%. The typical holding periods reported by these surveys range from 5 to 15 years.

A new source of hotel investment return data is the previously mentioned publication entitled *Transactions by HMBA*. Although this publication does not consider yield data, it does contain interesting direct capitalization rate data. During 1991 the HMBA reports to have sold 170 hotels, which account for approximately 25% of all reported nonjudicial U.S. hotel and motel sales. The size of these lodging facilities is typically up to 400 rooms. Statistical data relating to conventional sales and lender-owned (REO) sales summarized in the premiere edition of *Transactions 1992* include: operating performance at the time of sale, including average daily room rate and rooms revenue per room; hotel sales transactions statistics, including selling price per room, rooms revenue multiplier, net operating income multiplier and capitalization rate; and financing attained at the time of sale, including first mortgage loan-to-value ratio, amortization period, loan term and debt coverage ratio. Of the 170 HMBA hotel sales tracked during 1991, 94 were conventional sales, and 76 were REO sales. The average capitalization rate reported for the 94 conventional sales was 11.9%. The average capitalization rate for 70 sales of properties with fewer than 75 rooms was 12.5%. The average capitalization rate for 24 sales of properties with greater than 75 rooms was 9.8%.

Investor Interviews

As hotel real estate counselors we are in constant contact with numerous institutional and individual hotel investors. These investors have return requirements that may be expressed as an equity yield rate based on a 10-year projection of net income before incentive management fees but after debt service. Table 3 illustrates the equity yield requirements of a cross-section of hotel investors.

TABLE 3

Equity Yield Requirements

Source of Equity	Equity Yield Requirement
Individual syndicator	**20% to 24%**
Institution	**18% to 22%**

Source: Hospitality Valuation Services

Yields And Capitalization Rates Of Three Current Deals

As a final foray into the world of hotel capitalization rates, we analyzed three recent hotel transactions to illustrate current return rates. The three properties vary significantly in size, location and level of quality.

Sale number 1 was of a high-rise, luxury-class, under 500-room, chain-affiliated hotel located in the South Central United States. The property was purchased with cash for slightly more than $120,000 per room during the past year. The property had a successful operating history. Occupancies generally were in the high 70% range, and average room rates were slightly over $100 (with an upward trend) in 1990 and 1991. The overseas buyer was expected to ultimately finance part of the purchase with offshore funds and back the mortgage by a corporate guarantee. Because the anticipated debt did not reflect a pure real estate mortgage, we factored into our analysis several assumed structures for hotel debt financing from third parties or sellers. Table 4 illustrates the various yields and capitalization rates derived from the analysis.

Sale number 2 was of a mid-rate, first-class, chain-affiliated hotel located in the South Central United States. The property was sold by a U.S. lending institution and purchased during the past year by an overseas hotel operator with cash for approximately $41,000 per room. We were unable to ascertain if the buyer was interested in or able to finance a portion of the investment. The purchaser was reportedly planning to renovate and rename the property at an approximate cost of $14,000 per room. We analyzed the transaction on an all-cash basis and with several assumed debt structures. Table 5 illustrates the various yields and capitalization rates derived from the analysis.

The third sale involved an older (originally constructed in the late 1960s) mid-priced, standard-class, chain-affiliated lodging facility in the northern midwest. The facility had operated with 100 to 200 rooms. The property's historical occupancies were in the 50% to 60% range, but room rates had been declining from the ±$65 level since 1989. The purchaser intended to reposition the property to the upper end of the budget segment, eliminate the hotel's restaurant and lounge facilities but retain a limited amount of function space, and change the property's chain affiliation to one more suited to a budget-type operation. The property had been foreclosed and was sold out of foreclosure in mid-1992 for

TABLE 4

Yield and Capitalization Rate Analysis

Hotel Type	Luxury high-rise hotel
Location	South Central United States
Sales price per room	$121,000

Direct Capitalization Rates

Level of Income	Historical	First Year Projected	Stabilized Year Deflated to Current $
NOI after reserve for replacement	8.5%	9.5%	9.6%
NOI before reserve for replacement	10.3%	11.7%	11.8%

Ten Year DCF Yield Rates

	Leveraged @ 65%		Leveraged @ 50%		All Cash	
Yield Rate	Total Property (Yo)	Equity Yield (Ye)	Total Property (Yo)	Equity Yield (Ye)	Total Property (Yo)	Equity Yield (Ye)
NOI after reserve for replacement	13.5%	18.0%	13.5%	16.1%	13.5%	13.5%
NOI before reserve for replacement	17.1%	25.7%	17.1%	22.2%	17.1%	17.1%

approximately $13,000 per room; however, the buyer committed to spend another $7,000 per room (approximately) in renovations. The total investment therefore was $20,000 per room. Third-party financing was obtained at a stated 60% loan-to-value ratio; based on the purchase price alone (without considering the renovation costs), the actual loan-to-purchase-price ratio was closer to 70%. However, based on the purchase price plus the renovation cost, the loan-to-value ratio calculated out at slightly under 45%. The interest rate on the mortgage floated with the prime rate; however, this interest rate was reported to be artificially low due to the strong guarantees put in place by an entity that was known to the lender. The loan had a three-year balloon and was amortized on a 15-year schedule. Because the anticipated debt did not reflect a pure real estate mortgage, we factored into our analysis several assumed structures for hotel debt financing from third parties or the seller. Table 6 illustrates the various yields and capitalization rates derived from the analysis.

TABLE 5

Yield and Capitalization Rate Analysis

Hotel Type	First-class mid-rise hotel
Location	South Central United States
Sales price per room	$41,000
Renovation cost per room	$14,000
Total acquisition cost	$55,000

Direct Capitalization Rates

Level of Income	Historical	First Year Projected	Stabilized Year Deflated to Current $
NOI after reserve for replacement	2.8%	6.7%	12.1%
NOI before reserve for replacement	5.2%	8.5%	14.1%

Ten Year DCF Yield Rates

	Leveraged @ 60%		Leveraged @ 50%		All Cash	
Yield Rate	Total Property (Yo)	Equity Yield (Ye)	Total Property (Yo)	Equity Yield (Ye)	Total Property (Yo)	Equity Yield (Ye)
NOI after reserve for replacement	15.1%	20.0%	15.1%	18.8%	15.1%	15.1%
NOI before reserve for replacement	18.1%	25.5%	18.1%	23.2%	18.1%	18.1%

TABLE 6

Yield and Capitalization Rate Analysis

Hotel Type	Older, mid-rate hotel (to be converted to budget)
Location	North Midwestern United States
Sales price per room	$13,000
Renovation cost per room	$ 7,000
Total acquisition cost per room	$20,000

Direct Capitalization Rates

Level of Income	Historical	First Year Projected	Stabilized Year Deflated to Current $
NOI after reserve for replacement	6.0%	7.0%	15.7%
NOI before reserve for replacement	8.5%	9.6%	18.0%

Ten Year DCF Yield Rates

	Leveraged @ 60%		Leveraged @ 45%		All Cash	
Yield Rate	Total Property (Yo)	Equity Yield (Ye)	Total Property (Yo)	Equity Yield (Ye)	Total Property (Yo)	Equity Yield (Ye)
NOI after reserve for replacement	18.8%	27.0%	18.8%	23.7%	18.8%	18.8%
NOI before reserve for replacement	21.6%	32.4%	21.6%	28.0%	21.6%	21.6%

Conclusion

While third-party financing on hotel properties is scarce, hotel deals are being made, and the sales are being financed. That hotels are being bought and sold with equity and debt funding supports the consideration of mortgage and equity return requirements in developing today's capitalization rates. Despite the large number of seller-financed deals, purchase money mortgages and loans backed by corporate credit, debt terms for hotels are ascertainable, although the range of current loan-to-value ratios is broader than it was in the past. On the equity side, the market is clearly fragmented, with no apparent consensus on the required equity returns. Clearly the quality, age and class of the particular property, the strength (or weakness) of its operating and financial history, its position, both historical and potential, in the marketplace and the magnitude of any required renovation or repositioning influence strongly the type of equity investor who will be attracted to the property and the equity portion of the required return on investment. In developing capitalization rates for any particular hotel property, it is important to recognize these factors, interpret them in light of the kind of equity investor who would be attracted to the property, and understand their effect on the required rates of return to the equity component.

BUMPING ALONG THE BOTTOM

Capitalization and discount rates for specific property types have stabilized.

Webster A. Collins, CRE

Parts of this article are reprinted from Viewpoint 1992—Real Estate Value Trends, *pp. 15-19.*

At the end of 1991, the 44 offices making up Valuation Network, Inc., (VNI) published a monograph titled *Viewpoint 1992—Real Estate Value Trends*. The purpose of this publication was not to discuss what had happened to real estate value trends; this is well known. The crux of the publication was to concentrate on what indicators of value are driven by demographic and economic conditions and, from this data, to study the strength of property markets in various cities.

It is well-recognized that the value of real estate is driven primarily by occupancy and yield expectations. It is measured in the form of capitalization rates which increase or decrease depending upon growth or decline in income and the degree of perceived risk. Capitalization rates are low when demand substantially exceeds supply and major appreciation is anticipated. Conversely, capitalization rates are high when deflationary conditions exist.

As the 21st Century is approached, massive, unprecedented overbuilding must be confronted. As one participant at the CRE's 1992 Midyear Meeting in Cincinnati observed: there are not enough unemployed people in the United States to fill all the buildings built in the 1980s.

Real Estate Investment Criteria

Notwithstanding comments of this type, the fundamental, underlying truth of the matter is that the study of investment criteria, typically in terms of yield expectations and capitalization rates, has moved at a snail's pace in comparison with changes in value.

It is well known that real estate values in the United States have been off by as much as 25% between 1990 and 1991. At the same time, initial capitalization rates in the VNI survey rose by only 11.3% in those periods because of other components of the valuation equation, such as occupancy factors and related income/expense adjustments.

The year-end 1991 VNI going-in capitalization rate survey (Table 1) reveals some rather interesting conclusions:

- Capitalization rates related to office buildings have increased, since year-end 1991, between 15 basis points and 25 basis points.
- A capitalization rate increase of 15 basis points has occured in the industrial market.
- The regional mall market has declined by five basis points; in contrast, the strip shopping center market has increased by 20 basis points.
- The apartment market has strengthened on the basis of a decline of 10 basis points in going-in capitalization rates.

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TABLE 1

Year-End 1991 Going-In Capitalization Rates, Selected Property Types

	CBD Office	Suburban Office	Regional Mall	Community Mall	Strip Center	Ware-house	Show-room	Urban Multi-family	Suburban Multi-family
Atlanta, GA	8.75%	9.50%	—	10.00%	11.50%	9.75%	11.50%	8.75%	9.75%
Baltimore, MD	9.00%	10.25%	9.25%	9.75%	10.25%	10.00%	10.50%	9.50%	9.25%
Boston, MA	10.00%	11.00%	8.50%	10.00%	12.00%	10.00%	10.00%	10.50%	10.50%
Charlotte, NC	10.50%	11.00%	10.00%	10.50%	11.00%	12.00%	12.00%	—	10.50%
Chicago, IL	9.00%	10.00%	8.00%	9.00%	10.00%	10.00%	12.00%	10.00%	10.00%
Cincinnati, OH	10.00%	11.00%	9.00%	10.50%	10.50%	11.00%	11.00%	10.00%	10.00%
Cleveland, OH	9.00%	9.50%	9.00%	9.50%	10.00%	10.00%	9.50%	10.00%	10.00%
Columbia, SC	10.00%	10.00%	8.50%	9.50%	9.50%	10.00%	9.50%	9.00%	9.00%
Columbus, OH	9.00%	10.00%	9.25%	9.88%	9.88%	10.50%	10.00%	—	10.00%
Dallas, TX	9.50%	12.00%	8.50%	10.00%	12.00%	10.00%	10.50%	9.00%	10.00%
Denver, CO	10.00%	10.50%	9.50%	10.00%	11.00%	10.00%	11.00%	10.00%	9.50%
Detroit, MI	10.00%	9.00%	9.30%	9.60%	9.60%	9.35%	9.35%	—	9.50%
Fort Worth, TX	10.00%	12.00%	9.50%	12.00%	13.00%	10.25%	—	11.50%	—
Hartford, CT	10.50%	10.50%	—	10.00%	10.50%	10.75%	10.75%	11.50%	10.00%
Houston, TX	10.30%	10.90%	9.50%	11.20%	11.50%	10.50%	10.50%	9.20%	9.40%
Indianapolis, IN	8.50%	9.75%	—	10.50%	12.00%	11.00%	—	10.00%	9.75%
Kansas City, MO	8.50%	9.00%	8.00%	9.00%	9.50%	10.50%	10.50%	10.50%	9.50%
Los Angeles, CA	8.50%	9.00%	8.00%	9.00%	10.00%	9.00%	10.50%	9.00%	9.00%
Louisville, KY	9.25%	9.75%	—	10.75%	10.00%	10.25%	10.25%	—	9.75%
Miami, FL	9.75%	9.75%	—	9.75%	9.75%	10.00%	10.00%	9.50%	9.50%
Minneapolis, MN	9.00%	10.00%	8.00%	9.75%	11.50%	10.50%	10.50%	11.00%	10.00%
Morristown, NJ	8.75%	9.50%	8.50%	9.00%	10.00%	9.00%	9.50%	9.00%	8.50%
New Orleans, LA	12.00%	12.00%	9.50%	11.50%	12.00%	11.00%	13.00%	12.00%	10.50%
New York, NY	9.00%	11.00%	7.00%	9.00%	10.00%	9.50%	10.50%	—	—
Nassau - Suffolk, NY	8.50%	8.50%	9.50%	9.50%	9.75%	10.00%	10.00%	9.00%	9.00%
Omaha, NE	9.00%	9.50%	9.00%	9.50%	9.50%	9.50%	10.00%	9.50%	9.50%
Orlando, FL	9.00%	9.50%	7.50%	9.50%	9.50%	9.00%	10.00%	9.00%	9.00%
Philadelphia, PA	9.00%	10.50%	8.50%	10.00%	11.00%	10.00%	10.50%	10.50%	11.00%
Phoeniz, AZ	9.50%	9.00%	7.00%	8.00%	9.00%	9.50%	10.00%	8.90%	8.90%
Pittsburgh, PA	9.75%	10.75%	9.00%	10.50%	11.25%	12.00%	—	10.50%	9.50%
Portland, ME	10.00%	10.00%	8.00%	9.00%	10.00%	10.00%	10.50%	11.50%	11.00%
Portland, OR	9.00%	10.00%	8.00%	9.25%	10.50%	10.00%	10.50%	9.00%	9.00%
Richmond, VA	10.00%	10.50%	8.00%	10.00%	10.00%	10.00%	10.00%	9.50%	9.00%
St. Louis, MO	9.50%	9.50%	9.00%	9.50%	10.00%	9.50%	10.00%	11.00%	10.00%
San Antonio, TX	10.00%	10.50%	9.00%	10.00%	10.50%	11.50%	11.00%	10.00%	10.00%
San Diego, CA	9.00%	10.00%	7.50%	9.00%	10.00%	9.00%	10.00%	8.00%	9.00%
San Francisco, CA	8.00%	9.00%	7.50%	9.00%	10.00%	9.50%	9.00%	8.00%	9.00%
Seattle, WA	9.25%	9.75%	8.75%	9.25%	9.25%	9.25%	—	9.50%	9.50%
Syracuse, NY	9.00%	9.50%	9.00%	9.50%	9.50%	9.50%	9.50%	10.00%	9.50%
Tulsa, OK	10.25%	10.25%	—	11.50%	11.75%	11.00%	11.75%	10.25%	10.25%
Washington, DC	8.00%	9.50%	7.00%	8.00%	9.00%	9.00%	10.00%	7.00%	9.00%
West Palm Beach, FL	10.00%	10.50%	9.50%	10.50%	11.00%	10.50%	—	9.00%	9.00%
Average	9.42%	10.09%	8.52%	9.79%	10.44%	10.09%	10.42%	9.73%	9.63%

Discount Rates

Typical year-end 1991 discount rates in major cities, as reported by VNI members, in general are higher than 1990 rates. The most important change between 1990 and 1991 is a slowdown of the increase in discount rates, although the predominent conclusion is that discount rates are continuing to increase.

Discount rates are driven by a number of factors, one of which is the cost of money. In the past year, Baa-rated securities have declined in yield by over 100 basis points. Discount rates, in contrast, have increased by between 25 and 75 basis points. The one exception is found in the apartment market which has remained virtually unchanged.

The increase in discount rates is due to the perceived increase and risk in real estate. Thus, the decline in the capital equation has been more than offset by the increase in the risk equation. This

TABLE 2

Year-End 1991 Reversion Capitalization Rates, Selected Property Types

	CBD Office	Suburban Office	Regional Mall	Community Mall	Strip Center	Ware-house	Show-room	Urban Multi-family	Suburban Multi-family
Atlanta, GA	9.25%	10.25%	—	10.25%	10.75%	10.25%	11.25%	9.75%	10.25%
Baltimore, MD	9.00%	10.25%	9.25%	9.75%	10.25%	10.00%	10.50%	9.50%	9.25%
Boston, MA	10.00%	11.00%	9.00%	10.50%	12.00%	10.00%	10.00%	10.50%	10.50%
Charlotte, NC	10.50%	11.50%	10.50%	11.50%	11.50%	12.50%	12.50%	—	11.00%
Chicago, IL	11.00%	11.00%	10.00%	11.00%	13.00%	12.00%	15.00%	11.00%	11.00%
Cincinnati, OH	12.00%	13.00%	11.00%	12.00%	12.00%	12.00%	12.00%	10.00%	10.00%
Cleveland, OH	9.50%	10.00%	9.50%	10.00%	10.50%	10.50%	10.00%	10.50%	10.50%
Columbia, SC	10.50%	10.50%	8.75%	9.75%	9.75%	10.25%	9.75%	9.25%	9.25%
Columbus, OH	9.50%	10.00%	9.50%	10.00%	10.00%	10.50%	10.50%	—	9.75%
Dallas, TX	9.50%	12.00%	8.50%	10.00%	12.00%	10.00%	10.50%	9.00%	10.00%
Denver, CO	10.00%	10.50%	9.50%	10.00%	11.00%	10.00%	11.00%	—	—
Detroit, MI	11.00%	10.00%	9.80%	10.10%	10.10%	10.50%	10.50%	11.00%	11.00%
Hartford, CT	10.75%	10.75%	—	10.25%	10.50%	11.00%	—	11.50%	11.00%
Houston, TX	10.80%	11.40%	10.20%	12.00%	12.10%	11.00%	11.00%	9.90%	10.10%
Indianapolis, IN	10.50%	11.00%	—	10.75%	11.00%	10.00%	10.00%	11.00%	10.50%
Kansas City, MO	9.00%	9.50%	9.00%	9.50%	10.00%	11.00%	11.00%	11.00%	10.00%
Los Angeles, CA	10.00%	10.50%	9.00%	10.50%	11.00%	10.00%	10.00%	9.00%	9.00%
Louisville, KY	10.25%	10.75%	—	11.75%	11.00%	11.25%	11.25%	—	10.75%
Miami, FL	10.25%	10.25%	—	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%
Minneapolis, MN	10.00%	11.00%	9.00%	10.75%	12.50%	11.50%	11.50%	12.00%	11.00%
Morristown, NJ	9.00%	9.50%	7.50%	9.00%	10.00%	9.00%	10.00%	10.00%	9.00%
New Orleans, LA	10.00%	10.50%	9.00%	10.50%	11.00%	10.50%	11.50%	12.00%	10.00%
New York, NY	10.00%	12.00%	8.00%	10.00%	11.00%	10.50%	11.50%	—	—
Nassau - Suffolk, NY	9.00%	9.50%	8.00%	8.50%	10.00%	9.00%	10.00%	9.00%	10.00%
Omaha, NE	9.50%	9.50%	9.00%	9.50%	9.50%	9.50%	9.50%	9.00%	9.00%
Orlando, FL	9.00%	9.50%	8.00%	9.50%	9.50%	9.50%	10.00%	9.50%	9.50%
Philadelphia, PA	9.50%	11.00%	9.00%	10.50%	11.50%	10.50%	11.00%	11.00%	11.50%
Phoeniz, AZ	12.50%	12.50%	9.00%	10.00%	11.00%	11.50%	12.00%	10.50%	10.50%
Pittsburgh, PA	9.75%	10.75%	9.50%	11.00%	11.75%	12.00%	—	—	—
Portland, ME	9.50%	9.50%	8.00%	9.00%	9.50%	9.50%	10.00%	10.00%	10.00%
Portland, OR	9.50%	10.50%	8.50%	9.75%	11.00%	10.50%	11.00%	9.50%	9.50%
Richmond, VA	10.50%	11.00%	8.50%	10.50%	10.50%	10.50%	10.50%	9.50%	9.50%
St. Louis, MO	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	11.50%	10.50%
San Antonio, TX	10.50%	11.00%	9.50%	10.50%	11.00%	12.00%	11.50%	10.50%	10.50%
San Diego, CA	10.00%	11.00%	8.00%	10.00%	11.00%	10.00%	11.00%	9.00%	10.00%
San Francisco, CA	8.00%	9.00%	7.50%	9.00%	10.00%	9.50%	9.00%	8.00%	9.00%
Seattle, WA	9.50%	10.00%	9.00%	9.50%	9.50%	9.50%	—	9.75%	9.75%
Syracuse, NY	10.00%	10.50%	10.00%	10.50%	10.50%	10.50%	10.50%	11.00%	10.50%
Tulsa, OK	11.00%	11.00%	—	12.25%	12.25%	11.50%	12.25%	11.00%	11.00%
Washington, DC	8.50%	10.00%	7.50%	8.50%	9.50%	9.50%	10.50%	7.50%	9.50%
West Palm Beach, FL	10.50%	11.00%	10.00%	11.00%	11.50%	—	—	9.50%	9.50%
Average	9.98%	10.60%	9.03%	10.23%	10.80%	10.49%	10.82%	10.08%	10.10%

increase continues but movement has slowed virtually to a snail's pace as shown in typical markets which exhibit discount rate increases of less than 10 basis points between year-end 1991 and the fall of 1992.

Reversion Capitalization Rate

The reversion capitalization rate is higher, as it should be, than the going-in capitalization rate. The question on most people's minds is: Have the spreads between going-in and reversion rates changed? Table 2, which provides year-end 1991 reversion capitalization rates, shows that the average reversion capitalization rate is 10.23% versus 9.79% for going-in rates or a spread approaching 50 basis points. This spread continues into 1992 with no appreciable change.

Capitalization Rate Rankings

The value of income-producing property is a direct result of where that property is perceived to "fit" within the yield/capitalization rate equation for

TABLE 3

Capitalization Rate Rankings, 1990-1991

Rank	Property Type	1991 Low (%)	1991 High (%)	1991 Avg. (%)
1.[1]	Regional mall	6.50	10.00	8.52
2.[2]	CBD office	8.00	12.00	9.42
3.[5]	Suburban multifamily	8.50	11.00	9.63
4.[4]	Urban multifamily	8.75	12.00	9.73
5.[3]	Community mall	8.00	12.00	9.79
6.[7]	Warehouse	9.00	12.00	10.09
7.[6]	Suburban office	8.50	12.00	10.09
8.[9]	Showroom	9.00	13.00	10.42
9.[8]	Strip center	9.00	13.00	10.44
[ ]	1990 Rank			

TABLE 4

Discount Rate Rankings, 1990-1991

Rank	Property Type	1991 Low (%)	1991 High (%)	1991 Avg. (%)
1.[1]	Regional mall	8.50	13.00	10.79
2.[2]	CBD office	9.00	15.00	11.66
3.[8]	Suburban multifamily	8.50	14.00	11.93
4.[3]	Community mall	9.00	14.00	11.94
5.[5]	Urban multifamily	8.50	17.00	12.08
6.[4]	Warehouse	9.00	14.00	12.15
7.[6]	Suburban office	9.00	15.00	12.24
8.[7]	Showroom	9.00	16.00	12.56
9.[9]	Strip center	9.00	17.00	12.61
[ ]	1990 Rank			

commercial real estate. Table 3 classifies types of property and their capitalization rates on an unleveraged basis with stabilized occupancy of 90% or better. The lowest capitalization rate (an average rate of 8.52%) is given to regional malls and the highest capitalization rate (10.44%) is applied to strip shopping centers. Essentially, capitalization rate rankings by property types indicate the relative degree of confidence in that type of property as an investment. Clearly, regional malls continue to be desirable. The major shifts shown here are an improvement in the desirability of suburban multifamily apartments and a decline in desirability of community malls/strip shopping centers as investments.

Discount Rate Rankings

Discount rates effectively indicate the long-term, 10 years or more, perspective in terms of the yield/risk equation. Table 4 presents discount rate rankings by property type for 1991 and compares them to rankings in 1990. Again, major improvement is shown in the suburban multifamily apartment market. This is consistent with VNI's overall conclusion that, of all property types, the apartment market is the closest to being in balance. In terms of trends for 1992, the discount rate rankings for 1991 appear to remain the same.

Outlook For 1992

Tables 5, 6 and 7 indicate that underlying capitalization and discount rate assumptions have stabilized across the country. Two-thirds of VNI members

TABLE 5

Projected Capitalization Rate Changes, 1992

Property Type	Declining	Increasing	Stable
CBD office	12%	21%	67%
Suburban office	12%	33%	55%
Regional mall	9%	17%	74%
Community mall	12%	21%	67%
Strip center	12%	33%	55%
Warehouse	15%	12%	73%
Showroom	14%	16%	70%
Urban multifamily	10%	23%	67%
Suburban multifamily	15%	20%	65%
Average	12%	22%	66%

TABLE 6

Projected Discount Rate Changes, 1992

Property Type	Declining	Increasing	Stable
CBD office	15%	15%	71%
Suburban office	15%	28%	58%
Regional mall	14%	14%	71%
Community mall	13%	15%	73%
Strip center	13%	25%	63%
Warehouse	15%	13%	72%
Showroom	14%	14%	72%
Urban multifamily	11%	14%	75%
Suburban multifamily	11%	14%	75%
Average	13%	17%	70%

TABLE 7

Capitalization Rate Trend for 1992, Selected Property Types

	CBD Office	Suburban Office	Regional Mall	Community Mall	Strip Center	Ware-house	Show-room	Urban Multi-family	Suburban Multi-family
Atlanta, GA	S	S	—	S	S	—	—	S	S
Baltimore, MD	S	I	S	S	I	S	I	S	S
Boston, MA	I	I	S	S	S	S	S	S	S
Charlotte, NC	S	S	S	S	S	S	S	S	S
Chicago, IL	S	S	S	S	S	S	S	S	S
Cincinnati, OH	S	S	S	D	D	D	D	S	S
Cleveland, OH	S	S	S	S	S	S	S	S	S
Columbia, SC	S	S	S	S	S	S	S	S	S
Columbus, OH	S	S	S	S	S	S	S	—	S
Dallas, TX	S	S	S	S	S	S	S	S	S
Denver, CO	D	D	S	S	S	D	S	D	D
Detroit, MI	S	S	S	S	S	S	S	S	S
Fort Worth, TX	I	I	S	I	I	S	—	I	—
Hartford, CT	S	S	—	S	S	S	S	I	S
Houston, TX	D	D	D	D	D	D	D	D	D
Indianapolis, IN	I	I	—	S	I	S	—	S	S
Kansas City, MO	S	S	S	S	S	S	S	S	S
Los Angeles, CA	I	I	S	S	S	S	S	S	S
Louisville, KY	S	I	—	S	S	S	S	—	D
Miami, FL	S	S	—	S	S	S	S	S	S
Minneapolis, MN	I	I	I	I	I	I	I	I	I
Morristown, NJ	S	S	—	I	I	S	S	S	S
New Orleans, LA	D	D	S	D	D	D	D	S	D
New York, NY	I	I	I	I	I	S	S	—	—
Nassau - Suffolk, NY	S	S	S	S	S	S	S	S	S
Omaha, NE	I	I	I	I	I	I	I	I	I
Orlando, FL	S	S	S	S	S	S	S	S	S
Philadelphia, PA	S	S	S	S	S	S	S	S	S
Phoeniz, AZ	S	I	S	S	I	S	S	I	I
Pittsburgh, PA	S	S	I	I	I	S	S	S	S
Portland, ME	S	S	S	I	I	I	I	I	I
Portland, OR	S	I	S	S	I	S	S	I	I
Richmond, VA	D	D	D	D	D	D	D	D	D
St. Louis, MO	S	S	S	S	S	S	S	S	S
San Antonio, TX	S	S	S	S	S	S	S	S	S
San Diego, CA	I-S	I	S	I-S	I	I-S	I	S	I
San Francisco, CA	S	S	S	S	S	S	S	S	S
Seattle, WA	I	I	I	I	I	I	—	I	I
Syracuse, NY	I	I	I	I	I	I	I	I	I
Tulsa, OK	S	S	—	S	S	S	S	S	S
Washington, DC	D	D	D	D	D	D	D	D	D
West Palm Beach, FL	S	S	S	S	S	S	—	S	S

S = Stable I = Increasing D = Decreasing

TABLE 8

Average Projected Years to Balance, by Property Type

Property Type	No. Years
Office	5.5
Retail	3.5
Industrial	3.3
Apartments	0.7

indicate this to be the case. Essentially, 1992-1993 values are not expected to be affected substantially by changes in capitalization and discount rates. Value changes will be a direct result of absorption, vacancy and market rents. These, in turn, will hinge upon success in business and growth in employment which are important underlying determinants of demand for real estate. Overall, years required to balance badly overbuilt markets is the key, and based on VNI's studies, the average projected years to balance range from 0.7 to 5.5 for various types of property in major cities located throughout the United States (Table 8).

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All manuscripts are reviewed by three members of the editorial board with the author's name(s) kept anonymous. When accepted, the manuscript with the recommended changes are returned to the author for revision. If the manuscript is not accepted, the author is notified by letter.

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